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TUBERCULOSIS AMONG EMPLOYEES OF THE MINNEAPOLIS SCHOOLS

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MINNEAPOLIS
AND
IDA LEVINE, M.D.
DENVER

Throughout the nation, school boards are contemplating the issuance of orders to the effect that all teachers and employees of school systems be adequately examined for tuberculosis. In a good many places, such orders have already been issued and the work is in progress. Every physician is interested in the health of the children of this country, even though he may practice a specialty remote from pediatrics. It is probable that during the next five years nearly every physician in this country will be called on to take a part in actual examination of teachers and children for tuberculosis or will be consulted by parents and others concerning the advisability of or information regarding such examinations. Health laws and regulations provide for examinations in several places, such as the following from one state:

> Section 5384. Teachers, pupils, etc. Certificate: No teacher, pupil or employee about a school building who is afflicted with pulmonary tuberculosis shall remain in or about such building without having a certificate issued by the local board of health or by an agent duly authorized by said board stating that said person is in no sense a source of danger to others.
>
> School Teachers, pupils, etc., with Tuberculosis. Section 2927. Causes for revocation or suspension: (*d*) Affliction with active tuberculosis or some communicable disease shall be considered as cause for the suspension of certificate, while the holder thereof is suffering from such disability.

As tuberculosis so frequently exists without producing any outward manifestations, it becomes necessary for any individual to prove that the disease does not exist. Attorney General Peterson of Minnesota has ruled that "the skin test for teachers is reasonable exercise of the police powers of the school boards if required for the purpose of safeguarding the pupils of public schools." Attorney General Bricker of Ohio says: "It is my opinion that it would be legal for either a board of education or a board of health to give the tuberculin test to school children by means of the injection method or application of a salve, if it is found to be a reasonable measure for the protection of the public health and safety." Therefore it behooves every member of the medical profession to add to his armamentarium and the very latest methods of examination, the most modern interpretations of his observations, as well as the new procedures used in the treatment and prevention of this disease.

THE PROBLEM

That a tuberculosis problem exists in many school systems of the world cannot be doubted. In 1932 we called especial attention to this problem and cited some of the reports that had been made by such workers as Ickert, Klein, Dietrich and Frost, who had found that children taught by teachers with open tuberculosis showed a much higher incidence of positive tuberculin reactions than those taught by other teachers. Ickert found that as high as 93.5 per cent of the children taught by tuberculous teachers reacted positively, whereas only approximately 25 per cent of the pupils of teachers who did not have open tuberculosis had been contaminated. Klein observed that approximately 72 per cent of the children being taught by tuberculous teachers had positive tuberculin reactions. Among the pupils of a tuberculous teacher reported by Frost, 71 per cent reacted positively, whereas only 11.4 per cent of children in adjacent districts taught by nontuberculous teachers were positive to the test. More recently, the Jordans, Peck, Burns, Slater and many others have called attention to the seriousness of the situation.

THE PREPARATION

The first step by way of preparation for such a survey is to give proper information to various groups regarding its necessity. In Minneapolis, sufficient agitation had aroused the school board so that a health certificate was required of all teachers in October 1921. For such certification, however, the requirement of the tuberculin test and x-ray films of the chest seemed too drastic. In fact, we did not then thoroughly appreciate their significance. Therefore, certificates in some instances seemed almost worthless. As time passed, much publicity was given this problem before medical and nursing organizations, school boards, educational associations, parent-teacher associations, and numerous other organizations in various parts of the country. Not infrequently the necessity for adequate periodic examinations for tuberculosis of every employee of the school system and every school child was called to the attention of the school board of the city of Minneapolis. The members of this board knew that every year teachers left their work because of advanced tuber-

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From the Lymanhurst School for Tuberculous Children and the Departments of Internal Medicine and Preventive Medicine, University of Minnesota Medical School.

Read before the Joint Session of the Mississippi Valley Conference on Tuberculosis and the Mississippi Valley Sanatorium Association, Cedar Rapids, Iowa, Sept. 28, 1934.

culosis. Often they had taught until the very day the advanced disease was detected. One such case resulted in action by the parent-teacher association of that school, which appointed a committee to confer with the superintendent of schools. As soon as enough publicity has been given the problem so that the various members of the community understand that it should be solved, it is time to ask for definite action of certain groups.

First, the problem must be discussed with the local medical society and definite action taken by that organization. The director of hygiene of the Minneapolis school board secured the approval of the local medical society to recommend that the board take action to determine as far as possible the exact tuberculosis situation among its employees. Therefore, Feb. 25, 1933, the school board adopted an order as follows: "Your Committee on Compulsory Physical Examinations recommends that between this date and the opening of school next September, all teachers and other employees of the Board of Education who come in contact with the school children submit to a Mantoux skin test; these tests to be applied at the expense of the Board under such arrangements as the Director of Hygiene shall make."

April 24, 1933, this order was modified by the adoption of the following: "That between this date and the opening of schools next September, all teachers and other employees of the Board of Education who come in contact with the school children submit to a Mantoux skin test, and if positive submit a single x-ray film of the chest; or in lieu of a skin test, submit a single x-ray film, to the Director of Hygiene; all tests and x-rays to be done at the expense of the Board under such arrangements as the Director of Hygiene shall make."

The second order permitted the option of x-ray films of the chest in lieu of the skin test required by the previous order. No sooner were these orders issued than the obstructionists of all health measures issued protests, which resulted in the board modifying the order on May 8, 1933, as follows: "On May 8, 1933, the Board of Education extended the time in which employees shall submit to a Mantoux skin test or furnish an x-ray film of the chest, to December 31, 1933."

Extension of time granted by the third order of the board met the objection of many teachers that their more or less exhausted condition, following the arduous duties of the school year, might result in a positive skin test, whereas, after a summer of rest the test was more apt to be negative. This, of course, was not founded on fact but it was conceded in order to allay the unrest that prevailed as a result of the original order of the board.

THE PROCEDURE

Having secured the approval of the local medical society and the order having been granted by the school board, we were ready to proceed with the administration of tuberculin tests and the preparation of x-ray films of the positive tuberculin reactors, in addition to those who refused the tuberculin test. Here we immediately met with difficulties because of rumors that were disseminated among the teachers concerning the great danger of the tuberculin test. Some were falsely told that tuberculin contains the germs of tuberculosis and that therefore they might contract the disease through the test. Another false rumor was that the tuberculin test would reactivate latent lesions in the body and would cause illness. Another was that administering tuberculin was being done for the purpose of eliminating teachers from the schools. This was based on the fact that there had been previous reductions in salaries and some discussion about decreasing the number of teachers. Other teachers were told that approximately 100 per cent of human beings would react positively to the test; therefore, why should they submit to it? This statement, of course, was based on personal opinion, as no one in this community had ever administered tuberculin tests to such a group to determine the actual facts.

We frequently heard the following: "These are times of depression; why waste tax money examining healthy teachers?" "They can't use us for guinea-pigs to solve some of their silly theoretical problems." The old standby of interference with personal liberty was used by some. "We're all taxpayers. We've got our rights." Several stated that they had friends in city, county or state politics who would see to it that all connected with this "outrage" would lose their jobs. Numerous other equally false and absurd rumors and statements were extant.

Many of the teachers had no first-hand knowledge of tuberculosis and became somewhat alarmed. Therefore, when the time arrived to begin the administration of these tests, only a very small percentage of the teachers in the first school visited submitted. They preferred to have only the x-ray film. Before we had visited many schools, new rumors flew thick and fast and were altogether beyond count. There were rumors that rose from fright: that the test had already caused gangrene and loss of arms of some of the teachers; that it had caused blindness; that it had caused incapacitation. Some teachers were of the firm belief that the tests were being given in order to make them ill so that others out of work might take over their positions. There were the sly rumors, the most outstanding of them all being that tuberculin acted as an emmenagogue, causing profuse uterine hemorrhage. None of the persons were so disloyal as to give us the names of the injured parties. However, one example of the probable source of these rumors was traced by good fortune; this teacher complained of a swelling of her arm from the fingers to the shoulder to twice normal size; we were unable to confirm this even by calipers, the arm was quite normal in size and the test was entirely negative. We found another teacher with a most peculiar reaction to the testing; she submitted very placidly to the injection of the tuberculin, walked out into the hall, and began to "suck out the poison" we had injected. Her arm was actually traumatized before she desisted.

In the fall of 1933 a higher percentage of teachers submitted to the test, as the rumors became fewer and fewer and the attitude of the teachers steadily improved. However, some refused the test for more logical reasons. We rather frequently had teachers refuse with statements such as "My sister had tuberculosis. She's perfectly well now but I would prefer to have the x-ray examination rather than the skin test." Another would say, "I was tested for this some time ago and had a positive reaction so I do not care to be tested again." There were a few persons who reported having been treated for tuberculosis. These persons felt that application of the Mantoux test was unnecessary and submitted x-ray films of the chest in lieu of the test.

The plan outlined for carrying out the orders of the board provided for the administration of the intracutaneous test (Mantoux) in the school buildings, thus working the least inconvenience possible on the personnel. A physician and a nurse visited each building and applied the test to all employees who wished to submit. Arrangements had been made with the local radiologic society for the taking of x-ray films of the chests of all teachers and others concerned who were authorized by the school board to have such films made. Teachers who declined the skin test were issued authorization slips for the making of the x-ray films, and persons whose tuberculin tests proved positive were issued a similar authorization. These films, when made, were forwarded to the hygiene department.

An option in this procedure was offered, permitting teachers to have the tuberculin test applied by their private physicians, a report of the result, certified over the physician's signature, to be sent to the director of hygiene. Further, the personnel was permitted to submit x-ray films of the chest taken by physicians of their own choice. These options were exercised at the expense of the teacher. All other costs were borne by the school board.

The records of all tuberculin tests applied and all x-ray films of the chest submitted under board authorization became the property of the school board. Reports on tuberculin test readings and reports on x-ray readings were made, in writing, to each individual concerned and forwarded under seal, making them strictly confidential.

TABLE 1.—*Interpretation of Films*

No evidence of disease	1,453
Scoliosis	2
Possible substernal thyroid	2
Change in cardiac outline	44
Evidence of increased bronchovascular markings	175
Evidence of fibrinous pleurisy	66
Evidence of first infection type and pleurisy	29
Questionable evidence of first infection type of tuberculosis	85
Evidence of first infection type of tuberculosis	532
Evidence of parenchymal lesions	78

While one of us administered most of the tests, which consisted of a single dose containing 0.1 mg. of tuberculin, interpretations were made after the forty-eight hour interval by school nurses. There might therefore have been a greater personal error than there would have been had a single person been delegated to the task.

THE RESULTS

Altogether, 2,190 of the personnel were tested with tuberculin and 1,384 elected an option. Of the 2,190 persons tested, 1,112 were definitely negative and 1,078 (49.22 per cent) were positive reactors. We were unable to retest each negative reactor with 1.0 mg. of tuberculin, since we were forced to simplify our procedure as much as possible and therefore may have missed some reactors. It was rather interesting to note the variation in the incidence of positive reactors in the different schools. Excluding the schools in which there were fewer than five teachers (two of these schools were 100 per cent negative) our lowest figure was 10 per cent positive out of ten teachers tested. Our highest reading was 82 per cent positive out of twenty-three persons tested. The highest group incidence was given by the school nurses, 91 per cent of the fifty-five being positive.

In the Mason City schools, Peck found that 55.67 per cent of the teachers reacted positively to the tuberculin test, while of those who were tested in Ames 28.6 per cent reacted positively. He finds that approximately 50 per cent of the teachers of Iowa have been infected. Cox reported that 40.6 per cent of teachers tested in the state of Washington were found to be positive tuberculin reactors. The Jordans found that 49 per cent of their group in western Minnesota were positive.

Nineteen of our negative reactors had x-ray films for various reasons, and eighteen of these presented no lesions, while one showed evidence of calcification in the right hilus. In order to secure uniformity, all of the films were interpreted by one of us and the results have been grouped in table 1. Among the positive tuberculin reactors, fifteen did not have x-ray films because of having left the school system before films were made. On the other hand, nineteen who had negative tuberculin reactions also desired to have x-ray films.

Thus, among 2,466 who had x-ray films made of the chest, 1,453, or 58.98 per cent, showed no evidence of disease, while two showed evidence of scoliosis and two evidence of substernal thyroid. Forty-four showed evidence of abnormality in cardiac outline. These were also advised to see clinicians for final diagnosis and any therapy that might be indicated.

There was evidence of increased bronchovascular markings in 175 instances. Some of these persons were later found to have suffered from asthma and some to have had infections of the upper respiratory tract or other conditions.

Sixty-six presented evidence of fibrinous pleurisy as indicated by obliteration of the costophrenic angle, diaphragmatic adhesions, and so on. Here again it is impossible from the tuberculin test and the x-ray film to determine the clinical significance of such conditions. In twenty-nine cases there was evidence of coexisting first infection type of tuberculosis and fibrinous pleurisy.

There was questionable evidence of the first infection type of tuberculosis in eighty-five cases, while in 532 others there was more definite evidence of the first infection type of tuberculosis. In this group with evidence of the first infection type is included those who have definite evidence of calcification in the hilus region and Ghon tubercle formation, as well as some who presented evidence of fibrous strands extending from the hilus region into the lung parenchyma, and definite enlargement of the hilus region.

Great care was taken to avoid interpreting shadows cast by blood vessels and other normal structures in the hilus region as evidence of calcium. We are thoroughly cognizant of the fact that small calcium deposits are often overlooked in the hilus region, since so many more have been reported at the postmortem examination by Miller and others than could be detected by antemortem x-ray film examination. The significance of definite evidence of calcium deposits in the parenchyma or hilus region has only recently been appreciated. The pathologists have taught that they should no longer be looked on or even spoken of as representing "healed" lesions. The x-ray film usually gives no information whatever of what is transpiring within and

immediately surrounding these deposits. This can be determined only by the pathologist. Therefore, none of the teachers in this group received a report to the effect that they had "healed" lesions.

In seventy-eight cases there was definite evidence of parenchymal disease. These have been subgrouped in table 2, only on the basis of probabilities. Because of the fact that the reinfection type of pulmonary tuberculosis is more frequently found in the upper half of the lung field, and other lesions such as pulmonary abscess or bronchiectasis more frequently occur in the lower half, one is reasonably safe in considering the former group of shadows as probably due to tuberculosis. Therefore, since clinical examinations could not be conducted by us, all persons with parenchymal lesions were advised to consult their physicians for completion of the examination and final diagnosis.

RECOMMENDATIONS

We are thoroughly cognizant of the fact that the tuberculin test and one x-ray film examination of positive reactors does not constitute complete examination for tuberculosis. We are also cognizant of the fact that an x-ray film examination alone does not constitute diagnosis; it only provides evidence that may be used by the clinician in conjunction with history, physical examination, laboratory examinations, and even bronchoscopic examination, in arriving at final diagnosis and determining whether the shadows revealed indicate disease of clinical significance. We do feel, however, that the best method of screening out cases for such examinations is through the use of the tuberculin test and the x-ray film. As it was not practical for the school board to carry out the further phases of the examination, reports of the results, with brief explanation, were sent to the teachers and other employees. Without exception when parenchymal shadows, changes in cardiac outline, or any other finding that might be significant was present, clinical examinations were advised. In order to keep a check on those who had parenchymal lesions that were probably due to tuberculosis, periodic roentgen examinations have been requested at stated intervals, the films to be submitted to the director of hygiene of the school board and to be compared with previous films. This ruling was made in order to protect the teacher herself and her pupils in the event that she does not have or fails to secure the services of a clinician to keep her lesions under close observation and recommend treatment or isolation, if necessary.

TABLE 2.—*Subgroups of Parenchymal Disease*

Probable pulmonary tuberculosis	
Unilateral minimal	36
Unilateral moderately advanced	0
Unilateral far advanced	3
Bilateral minimal	25
Bilateral moderately advanced	4
Bilateral far advanced	0
Probable nontuberculous basal infiltrations	7
Probable pneumonoconiosis	2
Pleurisy with effusion	1
Total	78

The director of hygiene has interfered in no way with the practitioners of medicine in such cases. In fact, it is not the duty of the school board to treat but it is definitely the duty of this board to make sure that their employees do not disseminate tubercle bacilli in line of duty. In such a survey there is always the danger that the school board will be too drastic in dealing with those employees found to have parenchymal shadows. Most of the members of school boards are not trained in medicine and therefore are not in positions to differentiate between the lesions that are dangerous at one time and safe at another, from the standpoint both of the individual and of her associates. Moreover, they are often fearful of public opinion. For this reason, every finding, whether normal or abnormal, in such a survey should be kept strictly confidential. On the basis of our experience we are of the opinion that even the tuberculin test should be applied on a part of the body which is not visible to the other teachers and pupils, and that even the report on the test should be made only to the individual tested.

All too often in survey work the observations have not been treated confidentially and teachers have been subjected to mistreatment. We cite the case of a teacher employed in a small city where tuberculin tests were administered to all the teachers and the positive reactors had x-ray films made of their chests. This particular teacher reacted positively, and the film showed evidence of disease in one lung which proved to be tuberculosis. It had not yet caused any symptoms and before the examination she was wholly unaware of its presence. Nevertheless, it was obviously a progressive type of lesion. She immediately took a leave of absence and had treatment instituted. When her physician observed that she was able to return to work, the fact was discovered that the information concerning the condition found at the time of the survey had not been treated confidentially. Almost every one in the community knew what had been found, and although the superintendent of schools was willing to have her return, members of the school board and the general public, without a clear understanding of tuberculosis, protested to such an extent that her return had to be postponed from time to time until she eventually sought employment elsewhere.

We would contrast this teacher's case with that of another from a small city who because of mild symptoms, of her own accord, sought an examination of the chest. This revealed quite extensive tuberculosis, whereupon she conferred with the superintendent, who with her private physician treated the condition confidentially. She undertook treatment similar to that administered to the teacher cited, and in due time her physician recommended that she return to work. He informed the superintendent of her condition and she has returned with no stigmas. She is still under close observation and is a safe associate for other teachers and the pupils whom she teaches.

One of the objects of seeking out cases of tuberculosis among teachers is to enlist the support of the members of their profession in the campaign against tuberculosis. When teachers know that, even though they are found to have disease which threatens their future and makes them menaces to their associates, they will later be treated justly by their school board, they will be much more willing to submit to examination. The fear will be removed and they will enter wholeheartedly into the campaign of finding and treating adequately cases of tuberculosis not only among members of their own profession but also among the pupils whom they teach, as well as the families of these pupils. Indeed, the employees of the school board, having sub-

mitted to a procedure intended to protect children against tuberculosis, might be expected to demand that the children be examined in order that they be insured against exposure. The examination of all school children is being considered in many places.

In the Minneapolis survey, the teachers have been treated fairly. There has been great effort put forth to keep the information concerning them confidential. Not a single teacher has lost her position because of a positive tuberculin reaction. One person found to be disseminating tubercle bacilli was required to take leaves of absence while treatment is being administered. Other teachers are being treated and kept under close observation because of lesions discovered through the compulsory examinations, but none will be required to give up work unless the lesions progress to the stage at which they may spread tubercle bacilli to their associates and, for their own good, more drastic treatment becomes necessary. This action on the part of the director of hygiene of the school board has revolutionized the attitude of the Minneapolis teachers concerning compulsory examinations. There are a few, of course, who are prejudiced against most health measures; but the attitude of many who were originally opposed has changed until now the personnel generally is in accord with the health movement—so much so, in fact, that many who had complied fully with the order demanded that thirty-three who have been negligent or reluctant to comply be compelled to submit at once.

Thus, the superintendent of schools at a meeting of the school board recommended that the thirty-three persons who had failed to comply with the orders to date be given until Oct. 1, 1934, to meet these requirements, and that those who had not complied by that date be suspended from their positions. Even though they are teachers and are well informed on the subjects they teach, they may have little information regarding health. Again, some are influenced by religion or are cultists. We do not know whether any of the thirty-three belonged to the foregoing groups. We would rather believe that their failures to comply with the order was due to procrastination. Be that as it may, all but one finally were examined and the majority of our teachers and other employees now manifest an intelligent attitude toward health work, which to us is an expression of sincerity in their life work.

COST OF SURVEY

An all-absorbing question is the cost of this survey. In all, 2,201 tuberculin tests were administered and interpreted, of which number 102 were not paid for by the school board; 2,476 x-ray films of the chest were submitted, of which number 238 were not paid for by the school board as a part of the survey cost. Some of these 238 films were taken at the Minneapolis General Hospital. The records of the department of finance of the school board show an expenditure of $5,525.50.

SUBSEQUENT OCCURRENCES

This work was undertaken purely as a survey and therefore was approved by the local medical society. It interfered in no way with the private practice of medicine, since practically none of the examinations would have been made without the order of the school board. Moreover, it is not contemplated that the work will be repeated at the expense of the school board but rather at the expense of each employe through physicians of their choice. This is now in effect for all new employees.

Following such a survey there will be occurrences, which, not understood by opponents, will be used by them to cast reflections on the work. There still is lurking in the minds of many people the idea that tuberculosis must be contracted in infancy or childhood, despite the abundant evidence to the contrary. Therefore many people still believe that if an examination is made in adult life and no tuberculosis is discovered that person is safe from future attacks of this disease. One such case is that of a clerk who reacted negatively in May 1933 and then spent the summer on a farm with an uncle who had open tuberculosis. She returned to her position in the fall apparently quite well. Jan. 10, 1934, she had a pulmonary hemorrhage and her x-ray film revealed shadows suggestive of moderately advanced pulmonary tuberculosis of the exudative type. Her tuberculin reaction was positive in the 1 : 100 dilution. This case has not invalidated our opinion of the negative reaction in the least. While we realize that the test is not 100 per cent accurate and that this woman might have been in the small group who had the disease without or with only minimal degree of allergy, it must be remembered that her exposure on the farm during the summer might also have resulted in her disease. We do feel that this case brings out the fallacy of the belief held by many people that the statement by a physician "you have no tuberculosis" is a guaranty that they will not develop the disease at some later time.

Another case is that of a teacher whose x-ray film showed very slight change in the left second interspace. There were small densities present, which we interpreted as evidence of the first infection type of tuberculosis. However, within a few months this teacher suddenly fell ill and was found to have extensive disease over the left upper lung field. We are inclined to believe that this was a case of tuberculous pneumonia, resulting from the rupture of a caseous lymph node into the bronchial tree. Thus, a person who is negative to the tuberculin test today may be exposed to some one suffering from tuberculosis tomorrow and have frank pulmonary tuberculosis within six to twelve months. Another may have lesions which appear insignificant but which through rupture or rapid spread may cause serious illness in a few days or weeks. Such cases show the great need of requiring examinations of teachers periodically. As a result of the follow-up work, three other persons have been found to have tubercle bacilli in the sputum, thus making a total of six open cases of tuberculosis already discovered directly or indirectly through the survey.

EDUCATIONAL ADVANTAGES

One of the objects of such a survey is to interest the teaching profession in tuberculosis control. During and immediately after the survey, all are interested. This is the time to apply the old principle in pedagogy that the best time to teach is when the individual is personally interested in the subject. Therefore, many teachers who had never thought about tuberculosis became interested in the disease and sought information. For example, they wanted to know just what tuberculin is. Here was an opportunity to explain how it is made and to disprove the false statements so frequently made about it, particularly to the effect that it contains tubercle bacilli.

The teachers asked why one reacts positively to the test and another negatively, and here was an opportunity to discuss sensitiveness of the tissues to tuberculoprotein, which results from the growth of tubercle bacilli in the human body. One also had an opportunity to call attention to the rapid decrease in the incidence of positive reactors and to point out to them how it may be possible in time to protect every one so that very few or none will have the handicap of sensitiveness to tuberculin. They asked what a positive reaction means and here was an opportunity to explain to them that it means an exposure to some one with tuberculosis at some previous time and that tubercle bacilli have entered, so that at least one focus of tuberculosis exists somewhere in the body, and to point out that this constitutes a double health liability and that the old idea that a positive reaction is an asset is erroneous. Here one can also point out the great value of the tuberculin test in tracing the source of the infection and explain that the exposure may have continued to the present time and may be found among close associates apparently in good health. One teacher refused the test without giving any reason. Further examination revealed definite evidence of disease, after which she called our attention to the fact that at one time her father had been a sanatorium patient but for several years had refused to have further examinations. It was learned that while he was in the institution he had advanced tuberculosis of the chronic type, with cavitation. She now insisted on a reexamination of her father, which showed very definite evidence of tuberculosis. We understand that several teachers who reacted positively to the test became interested enough in the source to have various members of their families examined for tuberculosis by their physicians.

Teachers asked whether one can determine from the tuberculin test if an individual has a progressive disease. Here was an opportunity to call their attention to the strong natural protective mechanism of the human body and to point out how this in the majority of cases walls off the bacilli so that they never cause illness. Attention must also be called to the fact that a minority, consisting of from 10 to 20 per cent of positive reactors, will at some time be ill from tuberculosis.

When the x-ray film interpretations are presented to the teachers, other questions arise in their minds. Some ask whether disease always attacks the lungs and here one has an opportunity to explain that tuberculosis may attack almost any part of the body and the fact that the x-ray film shows no evidence of disease in the lungs of a positive tuberculin reactor is no indication that tuberculosis does not exist. Others will ask whether the x-ray film is infallible, even when disease exists in the lungs. Here one has an opportunity to explain that considerable disease may exist without being visualized by x-ray film examination; that the disease area must be large enough so that it can be plainly seen with the naked eye before it will cast a shadow on an x-ray film which can be seen by the naked eye. One must explain that, while much may escape detection on an x-ray film, when an area of disease in a lung is sufficiently large to threaten the immediate future of the individual and to be a menace to that person's associates it will nearly always cast a shadow that can be visualized on the x-ray film. However, other phases of examination are necessary to determine the exact nature of the disease that casts the shadow. Still another teacher will inquire as to whether the x-ray film will determine with accuracy as to whether a lesion is progressive. Here one has an opportunity to explain that x-ray film work is purely a matter of studies of lights and shadows and that there is nothing sufficiently characteristic about shadows so that one can determine with a high degree of accuracy as to whether a lesion is progressive, but that periodic x-ray film examination and comparisons give one an opportunity to study the size and nature of the shadows from time to time and in this way progressiveness of a lesion may be very definitely determined.

SUMMARY

Observation has shown that a very definite tuberculosis problem exists among teachers and other employees in the schools of this country. Therefore, many school boards are requiring examinations of teachers. Large numbers of physicians throughout the country will be consulted or called on to take part in these examinations in their offices and elsewhere.

The preparation for the examination of teachers in any community must begin with the approval and active support of the local medical society, followed by the proper issuance of an order by the school board. In many places the latter probably will not be necessary, as the teachers will voluntarily submit to adequate examinations by physicians of their choice. The procedure is very simple, consisting of administration of the tuberculin test and the making of x-ray film examinations of all positive reactors. These act only as screens to determine which teachers should have complete clinical examinations by their physicians.

In our survey, one employee was found to be disseminating tubercle bacilli and sixty-eight others presented lesions that were probably due to tuberculosis of the reinfection type. Subsequent examinations have brought to light five more open cases of tuberculosis. Numerous other workers have found open tuberculosis previously unsuspected among teachers, when compulsory examinations were made.

Teachers found to have open tuberculosis should be given leaves of absence until treatment aids in rendering the sputum negative and the lesions are brought sufficiently under control so that it is safe for the teacher to return to her work. Those who have lesions which are not progressive should be examined periodically and, if at any time the lesion is found to progress, treatment should be instituted. All observations should be treated confidentially, both in the physician's office and elsewhere.

The chief advantages of such a survey are that: First, disease may be detected before it has produced significant symptoms and when it can be treated successfully in a short time, thus saving the teacher a long period of inactivity from work. Such cases, by adequate treatment, may be prevented from breaking down so as to be a menace to the children and other teachers. Thus, the environment so far as tuberculosis is concerned becomes much safer from the standpoint both of the teacher and of the child. Second, compulsory examinations often lead to investigation on the part of the teacher so that she becomes informed concerning the contagious nature of tuberculosis. Many such teachers become enthusiastic workers in the tuberculosis control program. This should lead ultimately to the enlistment and the support of great educational associations, which will be a valuable acquisition to the forces against tuberculosis.

THE DECLINING DEATH RATE FROM TUBERCULOSIS IN CHILDREN

AN ANALYSIS OF TUBERCULOSIS DEATHS IN MINNESOTA FROM 1915 TO 1932

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There is a great deal of interest both in this country and in foreign countries in the prevention of tuberculosis in infants by the use of B C G vaccine. Proponents of this method of preventing tuberculosis feel that the immunity produced by B C G vaccine will reduce the incidence of the disease in infants and young children who are intimately exposed to tuberculosis, thus reducing the mortality rate in this age group.

The material presented here is not intended to express any opinion for or against the efficacy of specific vaccination against tuberculosis. It seemed of interest, however, to analyze the mortality rates from tuberculosis in children over a period of years in a state where no attempts at B C G vaccination have been made, and to compare the trend in mortality here with that in a locality where vaccination has been used.

Data were obtained from the tuberculosis mortality cards of the Division of Preventable Diseases of the Minnesota Department of Health and mortality rates computed per hundred thousand children in each age group. The method of estimating the population for each age group has been described elsewhere.[1]

All deaths from tuberculosis occurring in children under 15 years of age for the eighteen-year period 1915-1932 were tabulated. The deaths for each of these years were divided into the following age groups: under 1 year, 1 to 2 years, 2 to 3 years, 3 to 4 years, 4 to 5 years, 5 to 10 years and 10 to 15 years. The deaths for each age group were further classified according to the following types of the disease: tuberculous meningitis, pulmonary tuberculosis, miliary tuberculosis, lymph node tuberculosis, and bone and joint tuberculosis.

The numbers of deaths from lymph node and bone and joint tuberculosis were too small to make any comparison of rates reliable. Therefore, only the first three types will be discussed.

From the Students' Health Service and Department of Preventive Medicine and Public Health, University of Minnesota.

1. Boynton, Ruth E.: Tuberculosis Mortality Among Children in Minnesota, Am. Rev. Tuberc. **16**: 379 (Oct.) 1927.

MORTALITY RATES FROM ALL FORMS OF TUBERCULOSIS

Table 1 shows the number of deaths and the death rates from all forms of tuberculosis by age groups for each year from 1915 to 1932. Of a total of 2,946 deaths in children under 15 years of age, 656, or 22.3 per cent, occurred in children under 1 year of age. In 1915, 32 per cent of the deaths in children under 15 occurred in the group under 1 year; in 1926, 17 per cent, and in 1932, only 14.5 per cent.

This downward trend is shown graphically in chart 1. Compared to the decline in mortality from tuberculosis in all ages in Minnesota, the greater decrease in children under 1 year of age is striking. Wallgren,[2] citing the decrease in mortality from tuberculosis in children in Gothenburg, Sweden, as evidence of the value of B C G vaccination, says: "It should be noted that the general tuberculosis death rate, especially from pulmonary tuberculosis, has not shown the same downward tendency. This signifies that the number of the sources of infection has not, broadly speaking, decreased in proportion to the decrease in the number of deaths from tuberculosis in infants." The same difference between the tuberculosis death rate in the general population and in infants exists in Minnesota, although no use has been made of B C G vaccine.

TABLE 1.—*Tuberculosis Deaths and Death Rates Among Children in Minnesota, 1915-1932*

Year	Total		Under 1 Year		1-2 Years		2-3 Years		3-4 Years		4-5 Years		5-10 Years		10-15 Years	
	Deaths	Rate*	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
1915	260	36.7	85	178.0	29	64.5	9	18.2	10	20.0	6	12.2	57	24.1	64	27.8
1916	275	38.3	68	140.4	22	48.2	33	65.5	12	23.7	11	22.0	48	20.0	81	34.7
1917	265	36.4	78	148.7	21	45.4	23	45.3	36	50.8	9	17.8	37	15.2	66	27.9
1918	269	36.2	57	113.8	30	63.6	28	54.1	13	24.9	17	33.0	52	21.0	72	29.8
1919	173	23.1	35	69.3	22	46.2	17	32.5	14	26.5	13	25.0	31	12.4	41	16.8
1920	210	28.2	40	81.4	28	52.5	15	28.5	15	27.8	8	15.2	40	16.1	64	27.3
1921	159	21.0	29	58.2	25	46.1	9	16.8	12	21.8	2	3.7	36	14.2	46	19.3
1922	183	17.3	36	71.4	20	36.4	9	16.6	6	10.7	6	11.0	25	9.7	31	12.9
1923	190	24.5	46	90.1	34	61.2	14	25.5	13	23.0	13	23.6	28	10.7	42	17.3
1924	141	18.0	31	59.9	25	44.4	10	18.0	12	21.0	3	5.4	25	9.5	35	14.3
1925	132	16.6	38	72.5	6	10.5	7	12.4	7	12.1	6	10.6	26	9.7	42	17.0
1926	160	19.9	28	52.8	27	46.7	18	22.8	8	18.6	11	19.2	25	9.2	48	19.1
1927	126	16.2	26	51.8	15	27.8	17	31.5	6	13.2	4	7.4	19	7.2	39	15.8
1928	118	15.1	20	39.6	21	38.6	16	29.4	10	18.0	3	5.5	16	6.0	32	12.9
1929	108	13.7	20	39.3	12	21.9	11	20.1	12	21.4	5	9.1	15	5.6	33	13.2
1930	97	13.1	11	25.2	19	43.5	8	17.3	9	18.9	6	13.0	19	7.4	25	9.9
1931	68	9.1	4	9.1	10	22.7	5	10.7	6	12.5	3	6.4	15	5.8	25	9.8
1932	62	8.3	9	20.3	7	15.8	7	14.9	5	10.4	5	10.7	11	4.2	18	7.0
Total deaths	2,946		656		373		251		206		131		525		804	

* Rates per hundred thousand of population in the age group.

A comparison of mortality rates from one year to another may be misleading unless based on large numbers of deaths; hence the average death rate from all forms of tuberculosis by each three year period was computed and is presented in table 2. This again shows a downward trend of mortality for all age groups, with the group under 1 year showing the greatest decline. A comparison of the rate for the period 1915-1917

TABLE 2.—*Death Rates from Tuberculosis in Children in Minnesota by Three Year Periods*

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1917	36.6	155.7	52.3	43.0	31.5	17.3	19.7	30.0
2	1918-1920	25.8	88.1	54.1	38.3	26.4	24.4	16.4	24.6
3	1921-1923	20.9	73.2	49.7	19.6	18.5	12.7	11.5	16.5
4	1924-1926	18.1	61.7	33.8	17.7	15.5	11.7	9.4	16.8
5	1927-1929	15.0	43.5	29.4	27.0	17.5	7.3	6.2	13.9
6	1930-1932	10.2	18.2	27.3	14.3	13.6	10.0	5.8	8.9
Per cent decrease: 1915-1917 to 1930-1932		72	88	48	67	58	41	73	73

2. Wallgren, Arvid: Value of Calmette Vaccination in Prevention of Tuberculosis in Childhood, J. A. M. A. **103**: 1341 (Nov. 3) 1934.

with the rate for the period 1930-1932 shows that for all children under 15 years of age there was a decrease of 72 per cent; for children under 1 year, a decrease of 88 per cent, while for all ages there was a decrease of 58 per cent. This is shown graphically in chart 2.

A comparison of these figures with those reported by Wallgren [2] shows, first, that the mortality in Wallgren's

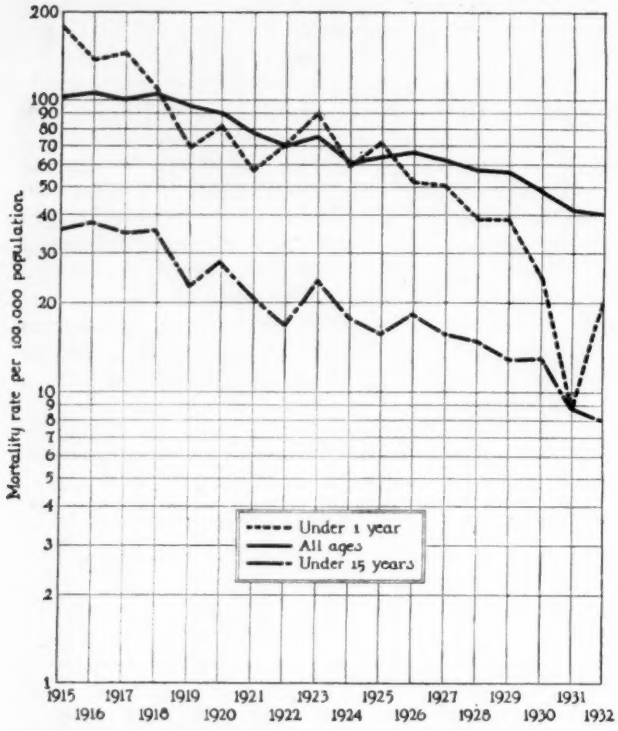

Chart 1.—Death rates from all forms of tuberculosis in Minnesota, 1915-1932 (logarithmic scale).

group from 1912 to 1916 was 430 per hundred thousand, while the Minnesota rate for approximately the same period was 155.7 per hundred thousand, and, secondly, that the mortality rates reported by Wallgren declined only 9.3 per cent from 1912 to 1928, while in Minnesota during the same period the rate declined 60 per cent.

TABLE 3.—*Mortality Rates from Tuberculosis in Minnesota by Six Year Periods*

Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
All forms of tuberculosis								
1915-1920	31.2	121.9	53.2	40.6	28.9	20.8	18.0	27.3
1921-1926	19.5	67.4	41.7	18.6	17.0	12.2	10.4	16.6
Actual reduction	11.7	54.5	11.5	22.0	11.9	8.6	7.6	10.7
Per cent decrease	37.5	44.7	21.6	54.2	41.2	41.3	42.2	39.2
1921-1926	19.5	67.4	41.7	18.6	17.0	12.2	10.4	16.6
1927-1932	12.5	30.8	28.3	20.6	15.5	8.6	6.0	11.4
Actual reduction	7.0	36.6	13.4	+2.0	1.5	3.6	4.4	5.2
Per cent decrease	35.9	54.3	32.1	+10.7	8.8	29.5	42.3	31.3

Wallgren reports a decline in mortality rate from 3.4 per thousand for 1922-1926 to 1.4 per thousand for 1928-1932, a reduction of 60 per cent. This he attributes largely to the use of B C G vaccine.

In order to compare the decline in rate in Minnesota with these figures of Wallgren, the average rate by six year periods in the eighteen years analyzed was computed. These data are presented in table 3. In children under 1 year of age there was a reduction in the death rate of 44.7 per cent between 1915-1920 and 1921-1926, and a reduction of 54.3 per cent between 1921-1926 and 1927-1932. Although this decline of 54.3 per cent is slightly less than the decline of 60 per cent reported by Wallgren for approximately this same period, it is significant to note that the rate of decline in Minnesota was greater during the last six years. For all children under 15 years of age the percentage decrease between the first six year period and the second six year period was 37.5 per cent, and between the second and third six year periods 35.9 per cent. As the mortality rates become lower, the percentage of decrease necessarily becomes lower as the irreducible minimum approaches.

TABLE 4.—*Deaths from Five Types of Tuberculosis in Children Under 15 Years of Age in Minnesota, 1915-1932*

Type	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
Meningitis.....	51.2%*	63.9%	67.0%	66.5%	61.2%	66.6%	45.5%	23.1%
	1,287	379	230	153	112	78	173	162
Pulmonary.....	37.4%	23.4%	21.5%	22.1%	24.0%	19.6%	41.3%	66.7%
	955	139	74	51	44	23	157	467
Miliary.....	7.9%	9.9%	9.6%	8.2%	10.3%	9.4%	7.3%	4.8%
	203	59	33	19	19	11	28	34
Lymph node.....	1.7%	2.1%	0.8%	1.3%	1.6%	2.5%	2.3%	2.0%
	48	13	3	3	3	3	9	14
Bone and joint...	2.0%	0.5%	0.8%	1.7%	2.7%	1.7%	3.4%	3.2%
	53	3	3	4	5	2	13	23
Total.....	100%							
	2,546	593	343	230	183	117	380	700

* Percentages represent the proportion of deaths in each age group caused by the particular type of tuberculosis.

Table 4 presents the total number of deaths from each of five types of tuberculosis for the period 1915-1932. The three types of tuberculosis causing the greatest number of deaths of children in this age group, in the order of their importance, are tuberculous meningitis, pulmonary tuberculosis and miliary tuberculosis. In the entire group under 15 years of age, 51.2 per cent of the deaths were caused by tuberculous meningitis, 37.4 per cent by pulmonary tuberculosis, and 7.9 per cent by miliary tuberculosis. In children under 5 years of age, tuberculous meningitis caused from 61 per cent

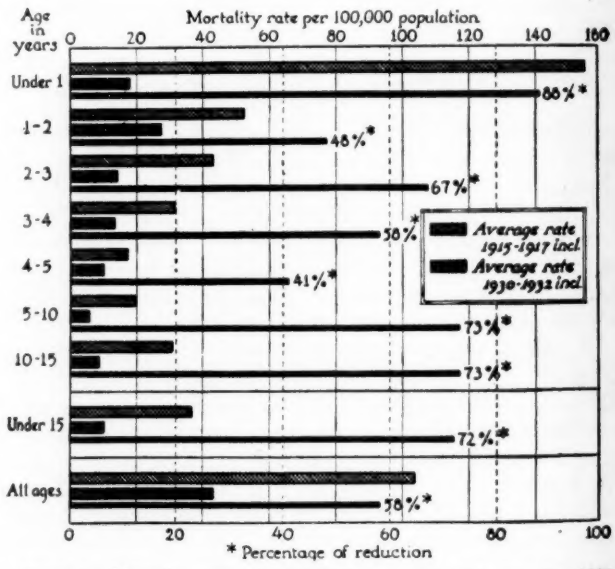

Chart 2.—Mortality rate of 1915-1917 compared with rate for 1930-1932 by age groups.

to 67 per cent of all deaths, while in the 10 to 15 year old group pulmonary tuberculosis caused 66.7 per cent of the deaths. This is shown graphically in chart 3.

TUBERCULOUS MENINGITIS

The decline in mortality from tuberculous meningitis is shown in table 5. For children under 15 years of age there was a decrease of 81 per cent between 1915-

1917 and 1930-1932, and in children under 1 year a decrease of 90 per cent. In table 4 it was seen that this form of tuberculosis caused more deaths than any other form in children under 15 years. Likewise the greatest reduction in mortality occurred in this type of the disease, the largest reduction occurring in the group under 1 year of age.

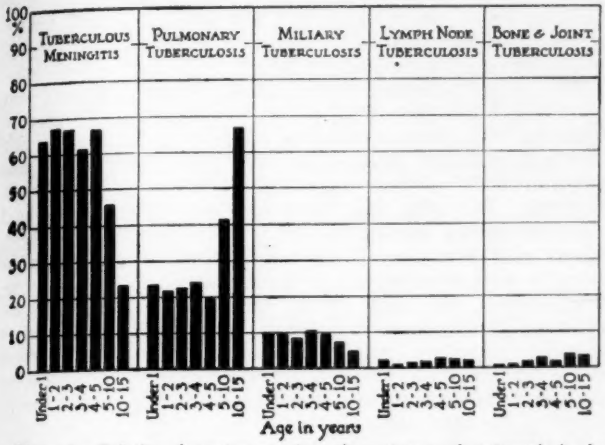

Chart 3.—Relative importance of various types of tuberculosis in children. Percentages show the proportion of deaths in each age group caused by each type of the disease.

TABLE 5.—*Mortality Rates from Tuberculous Meningitis in Children in Minnesota*

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1917	16.8	93.0	80.7	25.2	17.7	11.3	8.7	5.7
2	1918-1920	14.1	46.0	35.6	28.1	16.9	14.0	8.5	4.8
3	1921-1923	10.3	44.2	30.3	14.1	8.3	7.9	6.2	3.1
4	1924-1926	8.8	38.8	24.5	8.8	11.0	6.4	4.3	3.8
5	1927-1929	6.7	22.4	16.5	13.4	9.9	5.5	3.0	3.4
6	1930-1932	3.6	9.8	12.1	7.8	6.2	3.5	2.4	1.1
Per cent decrease:									
1915-1917 to 1930-1932		81	90	60	72	64	72	75	80

TABLE 6.—*Mortality Rates from Pulmonary Tuberculosis in Children in Minnesota*

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1917	12.0	33.7	7.9	9.9	5.8	1.6	6.3	17.8
2	1918-1920	9.1	18.6	10.3	5.7	5.6	4.4	4.4	14.0
3	1921-1923	6.1	15.1	9.6	2.4	5.9	3.0	2.8	8.5
4	1924-1926	5.1	10.1	3.4	1.2	1.7	2.2	2.0	8.9
5	1927-1929	5.6	9.1	8.5	9.1	4.1	0.6	2.1	8.5
6	1930-1932	4.3	6.0	9.0	4.3	4.1	2.1	2.0	6.1
Per cent decrease:									
1915-1917 to 1930-1932		66	81	+28	55	20	+31	66	64

PULMONARY TUBERCULOSIS

Although pulmonary tuberculosis causes a greater percentage of deaths in the older age groups, this form of the disease also shows the highest death rate in infants under 1 year of age (table 6). The rate of reduction, however, has been greatest in the group under 1 year of age (81 per cent). For the period 1930-1932 the rate of 6.0 for infants under 1 year is approximately the same as for the 10-15 year group, 6.1.

MILIARY TUBERCULOSIS

The actual number of deaths from miliary tuberculosis is smaller and the death rates therefore lower than for tuberculous meningitis and pulmonary tuberculosis. Nevertheless there is the same downward trend in mortality rates for all children, with the most marked decrease in the group under 1 year of age (table 7). Since miliary tuberculosis is usually the result of a massive infection, this reduction in mortality rate is evidence of the protection given children by the earlier diagnosis and isolation of infectious cases.

COMMENT

Petroff [3] has said: "The most convincing proof of the effectiveness of the campaign against tuberculosis adopted years ago is the decline year after year in the death rate from this disease."

As this analysis of deaths from tuberculosis in Minnesota shows, greater progress, as measured by mortality rates, has been made in controlling tuber-

TABLE 7.—*Mortality Rates from Miliary Tuberculosis in Children in Minnesota*

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1917	2.0	9.2	4.3	2.6	3.2	0.6	0.6	1.2
2	1918-1920	1.5	11.3	1.9	0.0	1.2	0.0	0.5	1.2
3	1921-1923	1.9	7.8	3.8	2.4	2.9	1.2	0.8	1.1
4	1924-1926	1.0	4.4	2.9	1.7	1.1	1.7	0.2	0.5
5	1927-1929	1.2	5.2	3.6	3.0	1.4	0.6	0.4	0.4
6	1930-1932	0.9	0.7	3.7	2.1	2.0	2.8	0.7	0.2

culosis in children than in older people. This is especially true of children under 1 year of age. In the future, vaccination of some sort may be used more extensively in the control of tuberculosis in young children. It seems evident, however, that a thorough and consistent general program for the control of tuberculosis, on the basis of our present knowledge of early diagnosis, isolation and treatment, has caused as great a decline in mortality as has occurred when specific vaccination has been used.

SUMMARY

1. In Minnesota, where B C G vaccination has not been tried, tuberculosis mortality rates in children are lower and have decreased at a more rapid rate than that reported by Wallgren in Gothenburg, Sweden, with the use of B C G vaccine.

2. From 1915 to 1932 inclusive, 2,946 deaths from all forms of tuberculosis in children under 15 years of age were reported in Minnesota. In 1915, 32 per cent of the tuberculosis deaths under 15 years occurred in the group under one year, while in 1932 only 14.5 per cent of the total deaths were in this group.

3. Although the mortality rate under 1 year has decreased more than 80 per cent during this eighteen

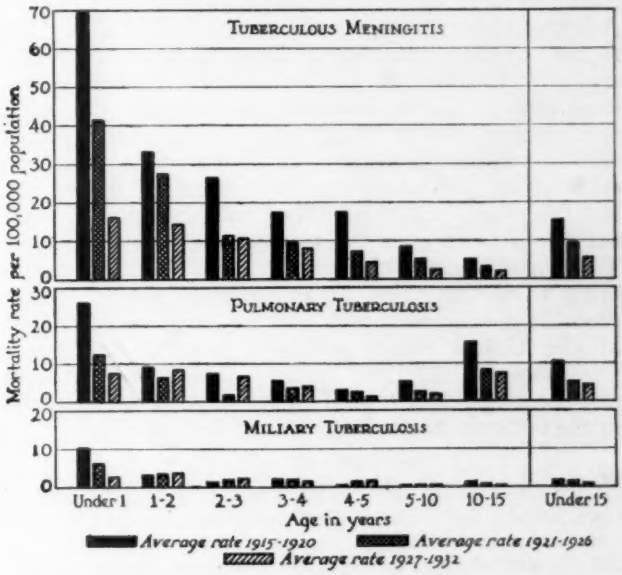

Chart 4.—Death rate from tuberculous meningitis, pulmonary tuberculosis and miliary tuberculosis by six year periods and by age groups.

3. Petroff, S. A.: Antituberculosis Vaccination, New England J. Med. **211**: 677 (Oct. 11) 1934.

year period, the death rate remains higher for the group under 1 year than for any of the other groups under 15 years.

4. Between 1915-1917 and 1930-1932 the mortality from tuberculosis declined 72 per cent for all children under 15 years of age, 88 per cent for infants under 1 year, and 58 per cent for the general population in Minnesota.

5. Between 1915-1920 and 1921-1926 there was a decrease of 37.5 per cent in the tuberculosis mortality in children, and between 1921-1926 and 1927-1932 a reduction of 35.9 per cent.

6. The types of tuberculosis causing the greatest number of deaths in children in the order of their importance were tuberculous meningitis, pulmonary tuberculosis, and miliary tuberculosis. The largest percentage of deaths from tuberculous meningitis occurred in children under 5 years of age and from pulmonary tuberculosis in those between 10 and 15 years of age. The highest mortality rate from both types was found in the group under 1 year of age. There was the greatest percentage of reduction in mortality rate in both types of the disease in children under 1 year of age.

7. Lymph node and bone and joint tuberculosis are negligible as a cause of death in children under 15 years of age.

RELAPSING FEVER IN THE UNITED STATES

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Prior to 1930, relapsing fever was practically unknown in the United States except for a few sporadic cases in Colorado and California, having last been encountered in epidemic proportions along the eastern Atlantic seaboard during the period 1869-1871. The report [1] of cases occurring in Texas in which the vector was proved to be the tick Ornithodorus turicata stimulated interest in this important disease with the result that in that state and California it has been reported with increasing frequency. In Texas,[2] data have been collected on 258 cases that have occurred during the last five years. On the basis of published proved cases the disease is endemic in Colorado, California, Arizona, Texas and Kansas. It is my purpose in this paper to bring to the attention of physicians a disease which probably is endemic throughout the entire southern half of the United States wherever ticks of the genus Ornithodorus find their habitat. The following cases may be considered typical of the disease as it occurs in the endemic areas:

REPORT OF CASES

CASE 1.[3]—Mrs. P. M. K., seen, Jan. 23, 1934, complained of fever, malaise and a chill. The temperature was 103 F. The temperature remained high, accompanied by chilly sensations, and she was admitted to the hospital, January 25, with a temperature of 105 F., pulse 116, and respiration rate 30. The past, personal and family histories were negative. On admission there was evidence of congestion in both lung bases, and roentgenograms revealed a diffuse bronchopneumonia throughout both lungs. The urine contained albumin and a few red and white cells. A moderate polymorphonuclear leukocytosis was present; otherwise the blood was normal. January 26 the temperature reached normal but rose to 105 F. on the 27th and then returned to normal by crisis on the 28th.

An afebrile interval of six days, during which period the patient felt quite well, was followed by a sudden accession of the fever to 104 F., February 3. The clinical picture, including the lung signs, was repeated, and this attack subsided, February 6. A slight elevation of temperature occurred on the 7th, with a return to normal on the 8th.

The patient remained afebrile until February 18 and was quite free from symptoms, except for a moderate degree of weakness. The temperature rose suddenly to 103.8 F. on this date and remained elevated until the 23d. This attack was complicated by a moderately severe iritis and hemorrhagic nephritis. Following this there developed extreme pain and localized sensory changes indicating a radiculitis of the third, fourth and fifth lumbar roots. Spirochetes of the genus Borrelia were demonstrated in the blood and 0.3 Gm. of neoarsphenamine was administered intravenously, February 20. February 28, symptoms referable to the iritis and nephritis were repeated in a milder form but a second injection of neoarsphenamine was not made, owing to severe retrobulbar pain, following the first injection, with a subsequent paling of the mesial aspect of the optic disks.

March 12, after an afebrile period of seventeen days, the final relapse occurred. The temperature rose to 103 F., and 0.6 Gm. of neoarsphenamine was administered intravenously. The temperature became normal within forty-eight hours and no further symptoms referable to the complications were noted.

CASE 2.—E. C., a white native of Texas, was a member of the Civilian Conservation Corps at Mathis, San Patricio County, Texas, in which organization he had served nine months, the past three being at Mathis, in the capacity of assistant surveyor. Twenty-five days prior to the onset of his illness he had spent parts of two days at his home in Hull, Texas, about 60 miles east of Houston. During the twenty-five day period he had remained in camp, with an occasional visit to Mathis. The previous history is unimportant. The onset of the illness was abrupt, July 30, 1934, with complaints of headache, malaise, fever increasing in severity that night and the following day, requiring admission to the camp dispensary on July 31. During the morning of August 1 a light chill was noted. Small amounts of white, mucoid sputum were raised without coughing. A moderate degree of weakness was complained of. On admission to the Station Hospital, Fort Sam Houston, August 1, the patient was acutely ill, with a temperature of 103.6 F., pulse 136, and respiration rate 32. The patient was well nourished and developed, entirely rational but with a heavy apathetic appearance. The skin was clear. The tongue was moist and heavily coated with white fur. The blood pressure was 100 systolic, 60 diastolic. The remainder of the examination was negative. Within twenty-four hours after admission the temperature reached normal, but a recrudescence occurred to 100.6 F., finally reaching normal, August 5.

After an afebrile period of three days, during which time the patient felt very well except for moderate weakness, a relapse occurred. The chief complaints were severe, generalized headache, pain across the lower part of the back and legs, sluggishness and weakness. The mind remained clear. The febrile period lasted three days, the fever reaching a maximum of 104 F., pulse 130. There was no cough or expectoration during this relapse. The temperature declined by crisis and was accompanied by profuse perspiration. The blood continued to show a mild leukocytosis, with a slight increase in the polymorphonuclear leukocytes.

A second relapse occurred August 17, after an afebrile period of six days. The clinical picture was essentially the same as the first relapse except that the temperature reached 106 F. and the patient appeared more ill. After three days the relapse terminated by crisis, accompanied again by severe perspiration. A light chill was noted during the febrile period.

The third relapse began August 27, after an afebrile period of six days. A dark field examination of the blood was made on the 29th and numerous actively motile spirochetes of the

From the Medical Service of the Station Hospital, Fort Sam Houston, Texas.

1. Weller, Burford, and Graham, G. M.: Relapsing Fever in Central Texas, J. A. M. A. **95**: 1834 (Dec. 13) 1930.

2. Kemp, H. A.; Morsund, W. H., and Wright, H. E.: Relapsing Fever in Texas: V. A Survey of the Epidemiology and Clinical Manifestations of the Disease as it Occurs in Texas, read at the thirtieth annual meeting of the American Society of Tropical Medicine at San Antonio, Texas, Nov. 14, 15 and 17, 1934.

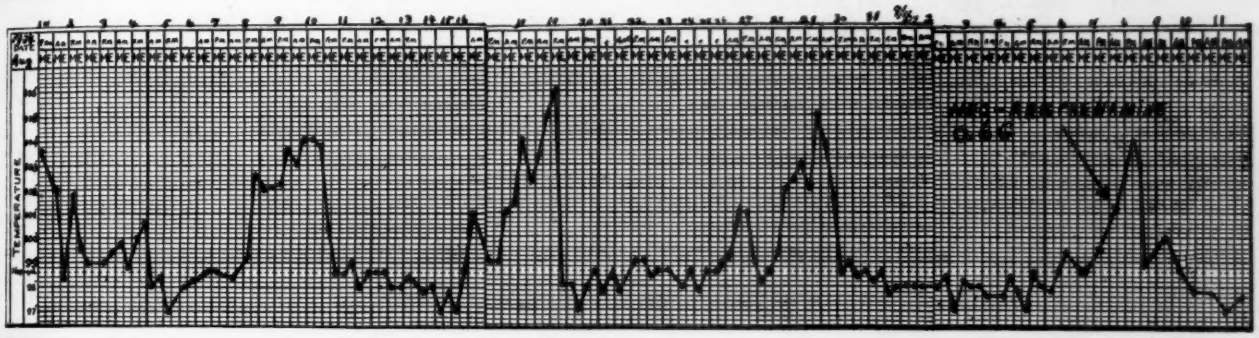
3. Report by Dr. Edgar M. McPeak, M.D., San Antonio, Texas.

genus Borrelia were found. On the 30th the temperature reached normal, accompanied by drenching sweats. The maximum temperature was 105 F. During the febrile periods the urine constantly contained traces of albumin and numerous granular casts. Examinations for malarial parasites were negative.

When the correct diagnosis was determined, treatment was delayed until the onset of the fourth relapse, which again occurred after an afebrile period of seven days. Except for moderate weakness and rather persistent pains in the muscles of both lower extremities, the patient had no complaints during this period. Spirochetes were demonstrated in the blood by stained smear twenty-four hours prior to the final rise of temperature. September 8, when the temperature had risen to 100.2 F., a single dose of 0.6 Gm. of neoarsphenamine was administered intravenously and within twenty-four hours the temperature reached normal. A period of four months has elapsed without further recurrence. There were no complications. A transitory four plus Kahn test was noted just prior to the fourth relapse, serologic tests being entirely normal on admission and before discharge.

HISTORICAL

Historically the disease is dated to observations by Hippocrates and it was subsequently known for centuries in Europe, Asia and Africa. The first modern observations were recorded by Rutty in Dublin in 1741.



Temperature during illness in case 2.

Irish immigrants are credited with introducing the disease into Philadelphia in 1844. In 1869 epidemics occurred in Philadelphia and New York. In 1873 Obermeier published his observations on the causative spirochete, which had first been seen by him in a German epidemic in 1868. The first cases [4] occurring in native Americans in whom the spirochetes were demonstrated in the blood were reported from Colorado in 1915.

ETIOLOGY

The exciting cause is a spirochete of the genus Borrelia, which produces a septicemia in man. Wherever found throughout the world, relapsing fever spirochetes morphologically exhibit no constant difference, but they have been given species names based largely on differences in immunologic reactions, although this method is now considered unsatisfactory and unreliable. Borrelia recurrentis is the name applied to the European "species" and Borrelia novyi to the American. The latter spirochete was isolated from a ship steward who had recently returned from tropical America. In Europe and Asia the disease is transmitted by the body and head louse and has been associated with typhus fever and hence has been definitely related to poverty, famine, poor sanitation and overcrowding. In central and eastern Africa, South America and the southwestern part of the United States, ticks of the genus Ornithodorus are chiefly concerned, and the disease tends to occur in the areas in which the ticks find their normal habitat. The tick concerned in the transmission of relapsing fever spirochetes is of the family Argasidae, genus Ornithodorus, of which there are numerous species. Argasine ticks are characterized by the fact that the head and mouth parts are concealed beneath the body so that as viewed from above only the legs are seen. The genus Ornithodorus is distinguished from the only other genus of this family, namely, Argas, by the rounded edge of its body.

By cytolysis and immunity tests,[5] spirochetes collected from widely separated regions in Texas were found to be identical with one another and a similar study of spirochetes collected in different parts of California [6] showed them to be identical with one another. A comparison of Texas and California "strains" has not been made. "Texas" [7] spirochetes were found to vary in length from 6 to 25 microns; they were actively motile, with a forward and backward rotary motion, and maintained a rigid longitudinal axis in wet preparations. In stained preparations the evenly coiled structure was replaced by wavy undulations with many twisted and looped forms. Attempts at culture were unsuccessful.

As seen in Texas [2] the disease tends to occur in rural districts, usually in isolated regions. It is not uniformly distributed throughout the counties where it occurs but tends to be sequestrated. The majority of cases occur in the late summer. Ornithodorus turicata spends its life [8] within a narrowly restricted area, preferring dry sandy country, the floors of small dry caves and old uninhabited rock houses. In California, relapsing fever appears to be contracted in mountainous areas 5,000 feet above sea level. In Kansas the reported cases have occurred in rural districts. The vector concerned, as heretofore noted, has been proved to be the tick Ornithodorus turicata in Texas alone, but it is not unreasonable to assume that a tick of the genus Ornithodorus is the vector throughout the entire southwestern part of the United States when it is recalled that throughout the world wherever tick-borne relapsing fever occurs no insect vector but ticks of the genus Ornithodorus have been incriminated. Francis [9] was unable to transmit relapsing fever to mice by the bite of bedbugs infected with the Texas "strain" of spirochetes.

4. Meader, C. H.: Relapsing Fever in Colorado, Colorado Med. **12**: 365, 1915.

5. Kemp, H. A.; Morsund, W. H., and Wright, H. E.: Relapsing Fever in Texas: I. The Identity of the Spirochete, Am. J. Trop. Med. **13**: 425 (July) 1933.

6. Coleman, G. E.: Relapsing Fever in California: II. Immunity, J. Infect. Dis. **54**: 1 (Jan.-Feb.) 1934.

7. Kemp, H. A.; Morsund, W. H., and Wright, H. E.: Relapsing Fever in Texas: III. Some Notes on the Biological Characteristics of The Causative Organism, Am. J. Trop. Med. **14**: 163 (March) 1934.

8. Kemp, H. A.; Morsund, W. H., and Wright, H. E.: Relapsing Fever in Texas: IV. Onithodorus Turicata Duges: A Vector of the Disease, Am. J. Trop. Med. **14**: 479 (Sept.) 1934.

9. Francis, Edward: Rat-Bite Fever and Relapsing Fever in the United States, Tr. A. Am. Physicians **47**: 143, 1932.

In many cases there is no history of tick bite. Kemp and his associates [8] stress the point that tick larvae and the smaller nymphs fill rapidly, in ten or twenty minutes, and produce a small, often painless lesion, which may be undetected by the host. These forms are infectious, as the parent tick once infected remains so for life and transmits virulent spirochetes to its progeny. Francis [10] demonstrated the persistence of spirochetes in naturally infected ticks collected in caves in Texas for a period of two and one-half years. The ticks had not been fed during that interval, but five days after they were allowed to feed on a white rat spirochetes were demonstrated in the animal's blood. The mode of infection in human beings appears to be contaminative in both lice-borne and tick-borne relapsing fever, in that infected coxal fluid and feces of the lice and ticks are rubbed into the wound made while feeding.

The armadillo and opossum in Texas [11] and the tamarack squirrel and chipmunk in California [12] have been proved to harbor spirochetes morphologically identical with Borrelia recurrentis. In Panama,[13] relapsing fever has been experimentally produced in man by the injection of blood from naturally infected animals. The animals mentioned may serve as reservoirs of infection in the regions named.

PATHOLOGY AND SYMPTOMATOLOGY

There have been no pathologic studies made in the United States, because of absence of material. Abroad, a parenchymatous degeneration of the kidneys, heart and liver has been noted, with a large soft spleen. The general symptomatology of relapsing fever is the same throughout the world, although variations occur as to the number and character of the paroxysms. In European relapsing fever (the louse-borne variety) the second febrile accession is usually shorter and of less severity than the first. Kemp and his associates [2] found that the onset of fever is abrupt, rapidly reaching 104 or 105 F., often accompanied by a chill, and with headache and muscle pain in the lower extremities and back. In the majority of their cases the febrile period lasted three days but varied from two to five. Sudden termination of the fever by crisis, accompanied by profuse, drenching sweats with a pungent odor was frequently noted. Relapses occurred at irregular intervals, varying in any one case from two to nine days. In the majority of cases the severity increased sharply in the recurrences. The pulse, unlike typhoid, is accelerated in proportion to the fever. Polymorphonuclear leukocytosis of a mild and moderate degree is usual. A rash of rose colored spots may occur on the trunk or limbs during the onset. The liver and spleen may become palpable. Nausea and vomiting with diarrhea occur in a minority of cases, constipation being a more common complication. In American cases, muscular asthenia of variable degree is the most common sequela, and hemorrhagic nephritis, iritis, cranial nerve paralysis and meningitis have been reported in a small number of cases. Throughout the world pneumonia, polyarthritis, parotitis, adenitis and abortion in pregnant women have been reported. In American cases the mortality has been zero. As the disease occurs abroad, the average mortality varies from 2 to 5 per cent and has reached 80 per cent in certain epidemics.

DIAGNOSIS

Clinically the temperature curve is the most important single clue in the diagnosis. Dark field examination of the blood taken during a paroxysm of fever is the method of choice for the demonstration of spirochetes present in large numbers. Thick blood smears, as prepared for malarial examination, are recommended, as they increase five fold the chances of finding the spirochetes. The dried smear without fixation should be immersed in a solution [11] (0.1 cc. of stock Giemsa solution in from 5 to 8 cc. of distilled water) for thirty minutes, dried without blotting, and examined under oil immersion. Of laboratory animals the monkey is most susceptible to inoculations from human beings. White mice and white rats are suited to routine use, an intraperitoneal injection of a drop or two of citrated blood resulting in spirochetosis in from two to three days. In the differential diagnosis, malaria is most often confused. Rat-bite fever can be differentiated only by demonstrating a spirochete quite different morphologically from Borrelia recurrentis. In certain respects typhus fever, typhoid, undulant fever and dengue fever show a similarity but the differences are more marked and these diseases should not present any difficulty unless they happen to coexist. A transitory positive Wassermann reaction is noted in about one fifth of the cases.

TREATMENT

The arsenicals are specific. A single intravenous injection of neoarsphenamine, 0.1 Gm. for each kilogram of body weight, administered at the onset of a paroxysm, will effect a cure in practically every case. It is to be emphasized that a single maximum dose is desirable and that treatment should not be instituted during the middle or terminal stages of a febrile paroxysm or during the afebrile period, as relapses are more apt to occur, with an increased frequency of complications. A study of case reports in the American literature reveals a close correlation between inadequate dosage and relapses, often with severe complications.

COMMENTS

In the endemic areas, relapsing fever is at present of low incidence. This is due in part to the sparsely settled conditions and to the habits of the insect vector. With an increase in population and especially if infected areas become more congested as the result of grouping, such as occurs in camps of the Civilian Conservation Corps or in military mobilizations, higher morbidity and mortality may be expected. Within recent years in northern Africa, Nicolle and Anderson transmitted the relapsing fever of Tunis through both ticks and lice.[14] These investigators consider this disease as originally tick borne, but, having become adapted to lice, has been spread throughout the world by these widely diffused carriers.

CONCLUSIONS

1. Relapsing fever in the southwestern part of the United States is an important clinical entity and is being recognized with increasing frequency.

2. It is believed that as physicians become "sensitized" to this disease the endemic area will be found to be of much wider extent than at present.

10. Francis, Edward, director, National Institute of Health, Washington, D. C.: Personal communication to Lieut.-Col. C. R. Callender, M. C., U. S. Army, Station Hospital, Fort Sam Houston, Texas.

11. Bohls, S. W., and Schuhardt, V. T.: Relapsing Fever in Texas and the Laboratory Method of Diagnosis, Texas M. J. **13:** 425 (July) 1933.

12. Porter, G. S.; Beck, M. Dorothy, and Stevens, I. M.: Relapsing Fever in California, Am. J. Pub. Health **22:** 1136 (Nov.) 1932.

13. Dunn, L. H., and Clark, H. C.: Notes on Relapsing Fever in Panama, with Special Reference to Animal Hosts, Am. J. Trop. Med. **13:** 201 (March) 1933.

14. Rogers, Leonard: Recent Advances in Tropical Medicine, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1929, p. 142.

3. Ornithodorus turicata has been proved a vector in Texas but in no other parts of the endemic area.

4. Armadillos, opossums, tamarack squirrels and chipmunks may serve as reservoirs of infection in the endemic area.

5. By simple laboratory methods available to all practicing physicians, a positive diagnosis can readily be made.

6. A specific remedy exists and it is important that it be administered properly to avoid unnecessary relapses and complications.

7. Inadequate dosage results in a prolongation of the afebrile interval.

A RAPID METHOD FOR THE IDENTIFICATION OF DIPHTHERIA BACILLI

ALSO A NEW METHOD FOR IDENTIFICATION OF CARRIERS OF DIPHTHERIA BACILLI

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Many patients with diphtheria do not receive antitoxin until a positive laboratory report on the nose or throat culture is obtained. This is common practice, even though medical students are taught to administer antitoxin if there is even a clinical suspicion of diphtheria. Moreover it is generally agreed that, the earlier antitoxin is given in diphtheria, the better the prognosis. At present at least eighteen hours and frequently more than twenty-four hours elapse between the time a throat culture is taken and the time a report is received, and such a delay before antitoxin is administered may mean the difference between recovery and death. Since so much dependence is placed on the bacteriologic diagnosis of diphtheria, we wish to familiarize the practicing physician with a rapid and accurate method for the identification of diphtheria bacilli.

In a previous communication we described briefly our early experience with the rapid culture method.[1] Further work has shown that the new method is not only more rapid but also more accurate than the Loeffler blood serum slant method, which at present is used almost universally for the culture of diphtheria bacilli. Solé [2] states that a description of the method was first given by Folger at a medical meeting in Carinthia thirty-six years ago but was not published. The technic, which is extremely simple, is as follows:

Sterile cotton swabs are impregnated with undiluted unheated horse serum to which no preservative has been added.[3] The swabs are then squeezed lightly against the sides of the tube to remove any surplus serum. They are removed and lightly heated over a flame to obtain surface coagulation and, possibly, as Solé states, to destroy any antibodies in the serum. The swabs are then used to take the nose and throat cultures in the routine manner. Instead of being implanted on a culture medium the swabs are put in dry sterile tubes, placed in the incubator and examined at the end of two and four hours. The physician's vest pocket may serve as an incubator. At the end of the incubation period, smear preparations are made on slides directly from the swab.

From the Willard Parker Hospital and the Department of Pediatrics, Cornell University Medical College.

1. Brahdy, M. B.; Brody, H.; Gaffney, C. A.; Lenarsky, Maurice, and Smith, L. W.: Comparison of a Rapid Method and the Routine Loeffler Method for Diagnosis of Diphtheria, Proc. Soc. Exper. Biol. & Med. **32**: 548 (Dec.) 1934.

2. Solé, Alphons: Rapid Culture of Diphtheria Bacilli, Wien. klin. Wchnschr. **47**: 713 (June 8) 1934.

3. Horse serum saturated with chloroform as a preservative may be used.

OUTLINE OF INVESTIGATION

The method was investigated for its reliability in cases of clinical diphtheria and in cases showing a nasal or pharyngeal membrane of nondiphtheritic etiology. From each nasal or pharyngeal lesion investigated, two Loeffler slants were inoculated and three swabs for the rapid cultures were made. One rapid culture swab was examined at the end of an incubation period of two hours and the second at the end of four hours. The third swab was incubated four hours and then the growth was transplanted to Loeffler medium. The transplant was incubated and this culture was used for fermentation tests and virulence tests in guinea-pigs for further verification of the morphologic diagnosis. One of the two Loeffler slants inoculated directly from the lesion under investigation was sent to the Board of Health laboratory and the other examined in the hospital laboratory. Thus we could compare the results of the rapid method with two independently examined Loeffler slants, as well as with the fermentation and virulence tests. The laboratory data were then correlated with the clinical diagnosis.

We used the following two types of cases in our study: (1) clinical diphtheria, and (2) those with membranous lesions in the pharynx due to streptococcic infections, Vincent's angina or leukemia. The second group served as a control series. The results in each group have been tabulated separately. We found, as Solé [2] reported, that in cases of clinical diphtheria about 80 per cent of the rapid cultures show diphtheria bacilli at the end of two hours. We again corroborated Solé's work in finding that the optimal incubation period is four hours, and therefore only the results with the four-hour culture are recorded in the tables.

RESULTS

Cases of Diphtheria.—The results in sixty-eight separate cases of clinical diphtheria are recorded in table 1. Some presented a membrane in both the nose and the throat, and therefore the number of examinations reported under the heading "culture from lesion" is greater than the total number of cases. Throat cultures were taken in sixty-five cases and nose cultures in forty-one cases. Of the sixty-five throat cultures, sixty-four were positive by the rapid method. In these sixty-four cases with positive rapid cultures the results of the Loeffler cultures reported by the two laboratories were as follows:

1. In fifty-two, both laboratory reports were positive.
2. In nine, one laboratory report was positive, the others being negative.
3. In three, both laboratory reports were negative.

In no instance was the Loeffler method positive and the rapid method negative. One case of nasal diphtheria showed negative throat cultures by both methods. Similarly in cultures taken from the nose a larger number of positive results was obtained by the rapid method than by the Loeffler method in either one or both laboratories.

Since it is the culture from the membrane that is of greatest practical importance to the clinician, the last line in table 1 is of especial interest. There were seventy-four cultures taken from seventy-four different diphtheria membranes. All were positive by the rapid method. On the other hand, the two Loeffler slants, inoculated from each membrane, were reported positive in one or both laboratories seventy-one times. This

TABLE 1.—*Sixty-Eight Cases of Clinical Diphtheria with Membrane: Comparison of the Rapid Culture Method with Loeffler Cultures from Two Laboratories*

		Positive 4 Hour Rapid Culture			Negative Rapid	
	Total Taken		Positive Loeffler (Both Labs.)	Negative Loeffler (One Lab.)	Negative Loeffler (Both Labs.)	Positive Loeffler (Both Labs.)	Negative Loeffler (Both Labs.)
Throat culture...	65	64	52	9	3	0	1*
Nose culture.....	41	30	20	7	3	1†	10‡
Culture from lesion....	74	74	63	8	3	0	0

* Case of nasal diphtheria. Nose culture positive by rapid method.
† Case of tonsillar diphtheria. Throat cultures positive by both methods.
‡ Cases of tonsillar or pharyngeal diphtheria with negative nose cultures.

left three "double" Loeffler cultures, taken directly from the membrane, which were reported negative for diphtheria bacilli but which were positive by the rapid method.

Controls.—The control group consisted of twenty-eight patients with membranous lesions in the throat due to various conditions such as streptococcic tonsillitis or pharyngitis, Vincent's angina and leukemia. Patients with an atypical membrane in the nose or throat are admitted to the hospital with the classification of "observation for diphtheria," because they do not present definite cases of diphtheria. If successive nose and throat cultures on Loeffler medium are negative for diphtheria bacilli, the diagnosis of streptococcic infection is made (if no other etiology for the membrane is found).

There were twenty-eight sets of throat cultures and fifteen sets of nose cultures taken in the control group. Most of the cultures were negative by both methods, as shown in table 2. Four patients with negative throat cultures on Loeffler medium but positive rapid cultures are of particular interest. The bacilli isolated from three of these four patients were virulent. We correlated the clinical data with our laboratory results. One of the three patients with virulent bacilli had a negative Schick test and was apparently a carrier with a non-diphtheritic membrane in the throat. Another patient received antitoxin at the time of admission when his temperature was 103 F. The temperature gradually subsided and was normal after five days. The third patient had exudate on her tonsillar tabs and a temperature of 103 F. Some of the examining physicians thought she had diphtheria and others did not. Cultures (Loeffler) from the Board of Health laboratory were negative and therefore the diagnosis of streptococcic infection was made. A Schick test examined at the end of twenty-four hours looked as if it might become positive and for that reason diphtheria antitoxin was administered. The patient's temperature was normal after three days. Did these two patients have diphtheria with negative Loeffler cultures? We are not certain that they had diphtheria but we do know that the rapid cultures showed that they harbored virulent bacilli, a fact entirely missed in the Loeffler cultures.

COMMENT

The factor of greatest importance in the prognosis in diphtheria is how early in the disease antitoxin is administered. During the past decade the incidence of diphtheria has decreased, with the result that physicians are less "diphtheria minded" and less familiar with the appearance of the diphtheritic pseudomembrane. Perhaps for these reasons antitoxin is not administered in many cases of diphtheria until a positive report on a culture is obtained. At present culture reports necessitate a delay of at least eighteen hours and usually more than twenty-four hours. Although we do not advise waiting for the report of a culture before giving antitoxin in suspected cases of diphtheria, this dangerous waiting period is decreased to four hours by the rapid culture method. Furthermore, the rapid culture of diphtheria bacilli can be done by the practicing physician because no special incubator is necessary.[4] We have found that the culture will be satisfactorily incubated by placing the test tube in the vest pocket for four hours. At the end of that time slide smear preparations can be made and stained with alkaline methylene blue or preferably Ponder's stain.[5]

DIPHTHERIA BACILLUS CARRIERS

The diphtheria bacillus carriers are an irksome problem in a contagious disease hospital. These perfectly well children and adults are confined to the hospital, because in a routine nose and throat culture organisms resembling diphtheria bacilli were found.[6] For both the hospital and the patient it is desirable to determine, as quickly as possible, whether diphtheria bacilli are present and, if so, whether they are virulent. Only those harboring virulent diphtheria bacilli need be hospitalized. The usual cultures on Loeffler medium from a particular carrier will be positive on some days and negative on others. Whether this is because there are relatively few organisms present or for some other reason, we do not know. In order to determine more accurately whether diphtheria bacilli were present and,

TABLE 2.—*Twenty-Eight Control Cases with Membrane: Comparison of the Rapid Culture Method with the Loeffler Culture Method (Loeffler Cultures Examined in Two Laboratories)*

Culture	Total Taken	Negative Rapid Negative Loeffler (Both Laboratories)	Positive Rapid Negative Loeffler (Both Laboratories)	Positive Rapid Positive Loeffler (Both Laboratories)
Throat	28	24	4*	0
Nose	15	12	2†	1

* Virulence tests showed that three of these cultures contained virulent bacilli. In the one with nonvirulent bacilli, fermentation tests identified the organisms as B. diphtheriae.
† Both were cultures of virulent bacilli.

if so, whether they were virulent, we developed the following technic at the Willard Parker Hospital:

A four-hour rapid culture was transplanted to a Loeffler slant and incubated eighteen hours. Colonies were fished from the Loeffler slant and examined. If diphtheria bacilli were present, the growth on the

4. Within a few months the method will be further simplified. Through the cooperation of the Lederle Laboratories a culture set ready for immediate use will be made available.
5. Ponder, C.: The Examination of Diphtheria Specimens: A New Technic in Staining with Toluidine Blue, Lancet **2**: 22, 1912.
6. By a recent order of the Board of Health of New York City "presumptive diphtheria carriers" are not hospitalized unless the bacilli which they harbor are shown to be virulent (Quart. Bull., City of New York Department of Health **3**: 1, 1935).

Loeffler medium was emulsified and used immediately for an animal test for virulence. The intracutaneous test in guinea-pigs was employed as a routine.

RESULTS

The results obtained with the new rapid method are compared with the routine Loeffler cultures in table 3. Culture sets were taken in twenty-two carriers and the results tabulated separately for nose and throat cultures. To simplify the comparison of the old method with the new one the total number of cultures recorded in the last line of table 3 may be used. All cultures were positive twelve times. The transplant was positive and one Loeffler culture was negative ten times. Animal tests in these ten cases showed that the bacilli in nine of them were virulent. Even more striking were the fifteen culture sets that were negative on both Loeffler slants but positive on our transplants. Among the fifteen there were six with virulent bacilli as shown by animal inoculation. The new transplant method for identifying carriers failed in one throat culture and one nose culture, which were reported positive on Loeffler medium by one of the laboratories.

TABLE 3.—*Twenty-Two Carriers: Comparison of the New Transplant Method with the Old Loeffler Method (Loeffler Method Culture Examined in Two Laboratories)*

	Positive Rapid Culture Transplant			Negative Rapid Culture Transplant	
	Positive Loeffler (Both Labs.)	Negative Loeffler (One Lab.)	Negative Loeffler (Both Labs.)	Positive Loeffler (One Lab.)	Negative Loeffler (Both Labs.)
Throat culture.....	8	5	6	1	2
Nose culture.....	4	5	9	1	3
Total cultures....	12	10 (9 virulent)	15 (6 virulent)	2 (1 virulent)	5

COMMENT

In comparison with the methods used until now, our new method gave more uniform results in the morphologic identification of diphtheria bacilli. Although Jarema and Smith [7] and others have shown that there is a relationship between the morphology of the diphtheria bacillus and its virulence, most laboratories still depend on animal tests in determining virulence. To obtain a culture pure enough for animal inoculation, the old methods require subcultures on agar plates, which are time consuming and, as a result, a minimum of five days is necessary for a virulence test. By our rapid culture transplant method a growth pure enough for animal inoculation is obtained within twenty-four hours, thus saving from two to five days in performing a virulence test.

CONCLUSION

A rapid method for the morphologic identification of diphtheria bacilli is described, and the work of Solé corroborated. The technic is simple and can be used by the practicing physician. The method is quicker and more accurate than that employing the Loeffler blood serum medium. A new, more reliable method for the identification of diphtheria bacilli in suspected carriers is described in detail. This forms the basis for a more rapid technic for the virulence test in animals.

531 East Lincoln Avenue—Fifteenth Street and East River.

7. Jarema, J. J., and Smith, L. W.: Relationship of the Morphology of the Diphtheria Bacillus to Its Virulence, J. Infect. Dis. **55**: 306 (Nov.-Dec.) 1934.

FROM PATHOLOGY TO EPIDEMIOLOGY IN TUBERCULOSIS

SOFTENING OF THE CASEOUS TUBERCLE AND ITS RESULTS

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The approach to epidemiology in current teaching is commonly by way of bacteriology. In diphtheria, scarlet fever, influenza, pneumonia, plague and infectious diseases in general, hygienists and sanitarians have concerned themselves chiefly with the etiologic agents of the diseases, the means by which they are spread and the measures that may be taken for prevention.

In tuberculosis epidemiologic stress has been laid on the tubercle bacillus, the sputum that acts as a vehicle in its dissemination, the closeness of contact between patients and healthy children or neighbors, and the methods by which the chain of infection from man to man may be broken, including isolation of the sputum-positive patient, the collapse of the infected lung to prevent the outflow of infected sputum and, at times and in some places, attempts at immunization of the patient's children.

In their clear perception of the means by which this chain may be cut, physicians have generally overlooked the phenomenon that starts the chain in the first place. This phenomenon, which puts pathology and epidemiology on common ground, is softening of the caseous tubercle. It is on this phenomenon that clinical medicine also, in treatment of the individual patient, should focus more of its attention than is at present the case.

The problem of softening of the caseous tubercle may justly be considered the key problem in tuberculosis. If caseous tubercles did not soften, the disease would be self limited and would die out with the end of the present cases, except for occasional cases dependent on unusual methods of transmission. The simplicity of facts concerned may readily be seen in the following brief summary of the course and spread of progressive pulmonary tuberculosis: The lung is infected by tubercle bacilli, cellular and subsequently caseous tubercles are formed, and some of these soften. The softened caseous matter is discharged into the bronchioles and aspirated into other parts of the lung, with the production of new tubercles, some of which in turn soften; or it is coughed into the outside world, where other people may be infected. That is, in short, the whole story.

The specific character of softening of the caseous tubercle has not been sufficiently emphasized. In textbooks on general pathology the two phenomena of caseation and softening are commonly not separated, and the distinctive nature of the latter process is not stressed, in spite of the fact that the first adequate description of the morbid anatomy of tuberculosis gave clear expression of the distinction. In the Médiate auscultation of Laënnec [1] the course of tuberculosis is divided into stages of infiltration, crude tubercle and softening. Laënnec wrote:

> In whatsoever manner these crude tubercles [i. e., caseous tubercles] may be formed, they finish . . . by becoming

Read before the Olmsted-Houston-Fillmore-Dodge County Medical Society, at the Mayo Clinic, Rochester, Minn., Nov. 22, 1934.

1. Laënnec, R. T. H.: Traité de l'auscultation médiate, Paris, 1819.

softened and liquefied. . . . When the tuberculous matter has completely softened, it breaks its way into the nearest bronchial tube. The resulting aperture being narrower than the cavity with which it communicates, both remain fistulous, even after complete evacuation of the tuberculous matter.

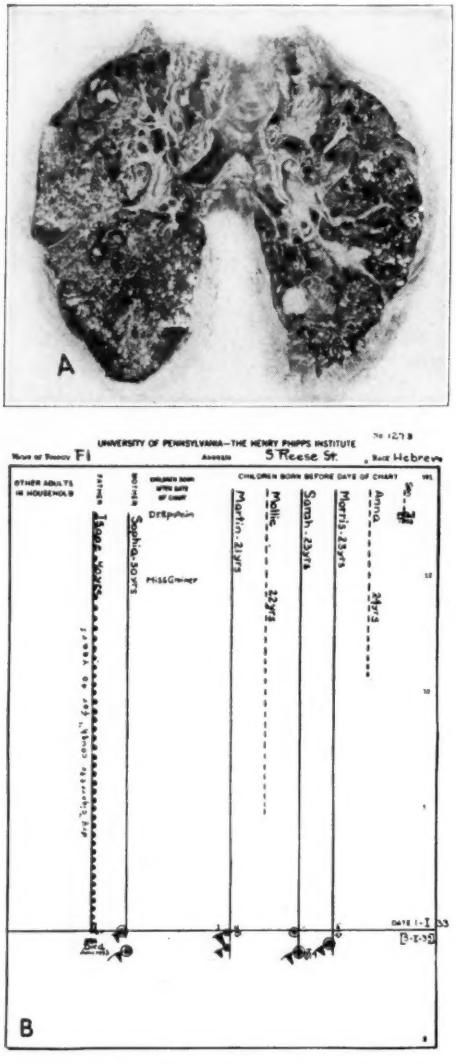

Fig. 1.—*A*, section of lungs of I. F., aged 74, who had tuberculosis for forty years and who was presumably responsible for the familial spread shown in *B*. *B*, chart of family of I. F. showing active tuberculosis in I. F. and presence of first infection and latent reinfection tuberculosis in members of his household. For further explanation see the text.

But if the phenomenon of softening of the tubercle has been underemphasized in the pathogenesis of tuberculosis, even less attention has been directed to a collateral event that gives the process of softening both its pathologic and its epidemiologic importance. Associated with the softening, an extraordinary multiplication of tubercle bacilli occurs. At the stage when the product of tuberculous infiltration first discharges into a bronchus, it has maximum infective power. Not before, nor again after, are tubercle bacilli to be found, in the region concerned, in the concentration coincident with softening.

This fact also has long been known. In the Etiology of Tuberculosis,[2] which bears the same classic relation to the bacteriology of tuberculosis as the Médiate auscultation to its pathology and clinical care, Robert Koch wrote:

> The bacilli are present in greatest number in fresh caseous infiltrations and the interior of cavities the walls of which are undergoing rapid liquefaction. They are encountered less numerously in cavities with indurated walls and are least frequent in scarred, contracted, pigmented lung tissue.

Indeed, the soft yellow lumps sought by the technician examining sputum, in order to save time in finding tubercle bacilli, are nothing more than bits of débris from the liquefying caseous nodules. Their presence in sputum is proof of softening with fresh excavation, and they are as good indexes of progressive disease as the elastic fibers described at length in all textbooks of clinical pathology.

The extraordinary abundance of tubercle bacilli in freshly softening caseous tubercles, if not generally appreciated, is, nevertheless, well known to specialists in the pathology of tuberculosis. In his comprehensive monograph on the Pathologic Anatomy of Tuberculosis, Huebschmann [3] emphasized the fact that, whenever liquefaction processes are developing, quantities of tubercle bacilli are easily recognizable, adding that he had never seen progressive liquefaction begin without some bacilli. In his well known studies on the early lesions of reinfection, Assmann [4] was impressed by the huge numbers of bacilli to be found in these lesions at the time of beginning excavation. Yet the facts are not current teaching, and new direction of attention to their existence seems timely.

In illustration of the double phenomenon of softening and abundance of tubercle bacilli, three cases will be cited from the experience of the Henry Phipps Institute, as representative of three types of case. The

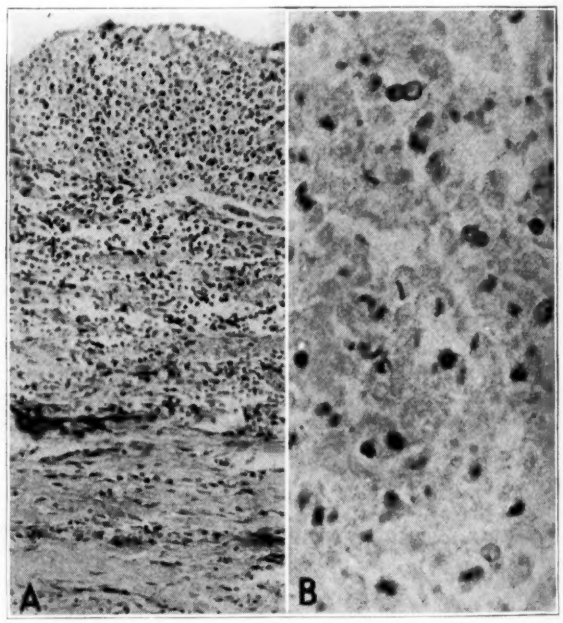

Fig. 2.—*A*, low power view (hematoxylin and eosin stain) of wall of large cavity in lung of I. F. (left apex, fig. 1 *A*). *B*, high power view of inner margin of same (upper margin of *A*, stained for acid-fast bacteria). Only one or two tubercle bacilli are visible.

three patients concerned were an elderly Jew with pulmonary tuberculosis of exceptional chronicity, a young American white adult with fatal pulmonary tuberculosis

2. Koch, Robert: Die Aetiologie der Tuberkulose, Mitt. a. d. kaiserl. Gesundheitsamte, Berlin **2**, 1884.

3. Huebschmann, Paul: Pathologische Anatomie der Tuberkulose, Berlin, Julius Springer, 1928.

4. Assmann, H.: Frühinfiltrat, Ergebn. d. ges. Tuberk. **1**: 145, 1930.

of ordinary duration, and a Negro child with "adult type" tuberculosis of extraordinary severity and rapid progression. The phenomena of softening and bacillary multiplication were qualitatively the same in all three but varied quantitatively with the type. The three cases cited may be considered to represent the two extremes and the average in the intensity of the processes concerned.

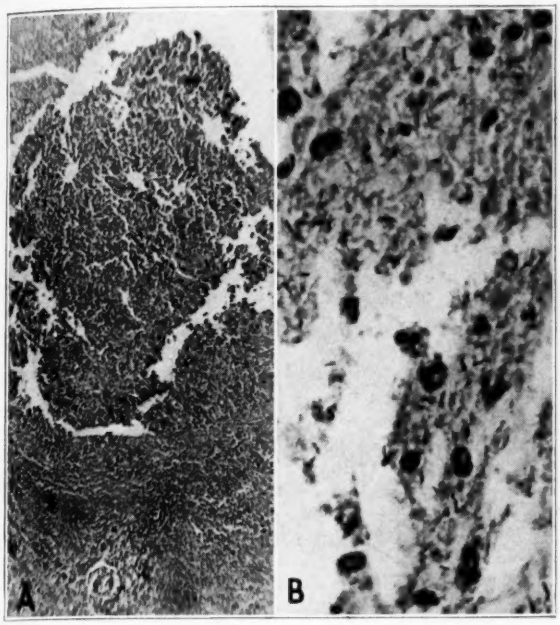

Fig. 3.—*A*, low power view (hematoxylin and eosin stain) of softening nodule in lung of I. F. *B*, high power view of the same (central region of *A*, stained for acid-fast bacteria). Large number of tubercle bacilli present.

REPORT OF CASES

CASE 1.—I. F., a Jew, aged 74, married and the father of six children, five living and one dead, entered the clinic of the Henry Phipps Institute Jan. 5, 1933, stating with pride that he had never had a doctor in his life. He admitted, on questioning, that he had had a "dry cigaret cough for forty years." He came to the clinic because for the past four months he had suffered with more severe cough, with expectoration, and from dyspnea and exceptional fatigue. On physical and roentgen examination he was found to have far advanced, bilateral pulmonary tuberculosis. The sputum was positive for tubercle bacilli with a Gaffky count of 5. He was sent to the Philadelphia General Hospital, where he died June 1, 1933. Postmortem examination showed bilateral fibroplastic and ulcerative pulmonary tuberculosis, with disseminated chronic bronchogenic tuberculosis throughout all lobes, with numerous spots of softening and early cavity formation in the bronchogenic tubercles. Almost no normal tissue remained (fig. 1*A*). A large calcified tubercle was found in the base of the left upper lobe and a small calcified tubercle in a left hilus lymph node.

The wife and three children were examined in the clinic of the Phipps Institute. One child had died at the age of 6 years of an unknown cause. Two children, said to be well, had left the family and could not be examined. The wife, aged 50, and the other children, one aged 21 years and a pair of twins, aged 23, all had large healed primary infections, readily visible by x-rays, and definite evidence of latent apical tuberculosis of the reinfection type.

The life lines for I. F., the wife and the children are shown, as routinely drawn in the Phipps Institute family charts, in figure 1*B*. In view of the almost total involvement of the lungs, it is probable that the "cigaret cough" which had lasted for forty years was really due to tuberculosis, and I. F.'s line is marked with solid dots (presumptive tuberculosis) accordingly. The solid blocks at the bottom of the line, extending to the right and left of the line, indicate clinical tuberculosis and positive sputum respectively. On the lines of the wife and children the solid circles, the solid circles within circles, and the triangles attached to segments of circles represent respectively nodules of first infection, calcified tracheobronchial nodes, and latent apical tuberculosis of adult type.

In this case the tuberculosis of the children is probably to be attributed to long contact with the father, since the lesions were diagnosed as of long standing (McPhedran) and since experience in the Phipps Institute indicates that universal infection of the children of a family is usually the result of intrafamilial spread. As to the tuberculosis of the wife, little can be said, as she was about 25 years old when she married. However the experience of the institute indicates that conjugal superinfections are common when one partner has positive sputum.[5]

The character of the exposure to which the family was subjected is indicated by figures 2 and 3. Bacilli were readily demonstrable in the cavity walls and the areas of softening and were much more numerous in the latter than in the former. It may reasonably be assumed that the sputum at all times contained moderate numbers of bacilli from the walls of the old cavities (fig. 2) and that they were present in much larger numbers intermittently whenever caseous bronchogenic nodules

Fig. 4.—Section from lung of A. S. Note spot of softening and drainage into bronchiole, in upper right quadrant.

softened and discharged their contents (fig. 3). On all occasions corresponding with the last named event the chances for infecting others by cough must have been exceptionally great. In most of the regions of softening, tubercle bacilli were from ten to twenty times as

5. Opie, E. L., and McPhedran, F. M.: Exogenous Tuberculous Infection of Adults, Arch Int Med. **50**: 945 (Dec.) 1932.

numerous as in the walls of old cavities. They were, however, in general much less numerous than in corresponding areas of softening in cases 2 and 3. This fact is to be correlated with the much greater chronicity of the disease in case 1. I. F. represented the well known type of Jew with extreme chronicity of tuberculosis. The wife and children, subject to heavy infection, with tuberculosis present but inactive, may be considered as of the same relatively resistant type.

CASE 2.—A. S., a white man, aged 29, married, the father of one child, admitted to the clinic of the Henry Phipps Institute Oct. 28, 1933, complained of cough, expectoration and weakness. On physical and roentgen examination he was found to have far advanced bilateral pulmonary tuberculosis, with tuberculous laryngitis. He was sent to the Philadelphia General Hospital, where he died December 14. At postmortem examination far advanced ulcerative tuberculosis of each upper lobe was found, with extensive bilateral chronic bronchogenic nodular tuberculosis, with numerous foci of softening (fig. 4), regions of caseous bronchopneumonia, and tuberculous bronchitis and tracheitis.

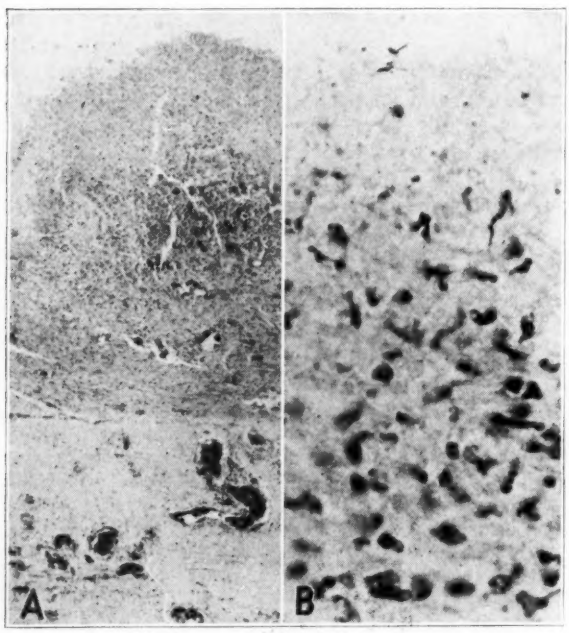

Fig. 5.—*A*, low power view (hematoxylin and eosin stain) of wall of a large cavity in lung of A. S. (not pictured in figure 4). *B*, high power view of inner necrotic margin of same (upper margin of *A*, stained for acid-fast bacteria). Few tubercle bacilli are present (note small group on upper margin).

His wife, aged 26, was not tuberculous on roentgen examination. A tuberculin test was not done. The 2 year old child reacted intensely to tuberculin (four plus; i. e., reaction with superficial necrosis, to 0.01 mg. of old tuberculin) and was found by roentgen examination to have a tuberculous nodule in the lower lobe of the right lung and several enlarged lymph nodes in the right hilus, some of them partly calcified.

In figures 5 and 6 some indication is given of the exposure to which those surrounding A. S. were subjected. As in case 1, tubercle bacilli were present both in the necrotic débris lining the walls of old cavities and in the semiliquid matter of softening caseous nodules or newly forming cavities. They were, however, literally hundreds of times as numerous in the latter as in the former location; the growth was essentially like that on artificial culture mediums. The section illustrated in figure 6 comes from the area seen in the upper right quadrant in figure 4. As shown in figure 4, this soft area has been partly excavated. The region communicates, as the illustration shows, with a bronchiole, and since it was partly excavated it may be assumed that, shortly before the death of A. S., discharge of semiliquid matter containing enormous numbers of tubercle bacilli had taken place in this bronchiole. Other similar regions were in the neighborhood, some in a more and some in a less advanced stage of softening and excavation. It is not surprising that the child of 2 years, living in the household of this patient, was heavily infected. Again, as in case 1, it may be assumed that, intermittently, corresponding with periods of discharge from such softening nodules, as shown in figure 4, A. S. was more dangerous than ordinarily to those around him. The bacilli were growing in his softening nodules on a greater scale than in case 1, and the much shorter life of A. S. may be related to this fact.

CASE 3.—C. D., a Negro boy, aged 8 years, was referred by his school to Clinic No. 3 of the Philadelphia Health Council because he had been coughing violently and persistently in class for some weeks past. Physical and roentgen examination, March 8, 1933, showed far advanced bilateral pulmonary tuberculosis of the adult type. The sputum contained tubercle bacilli (Gaffky 4 by count). The boy was sent to the Philadelphia General Hospital, where he died September 24. At postmortem examination extensive ulcerative and caseous tuberculosis with massive areas of softening was found in the upper two thirds of each lung. A retrogressing tuberculous primary complex was found in the left lung. There was a recent generalized tuberculosis in addition.

The source of infection was not determined with certainty, although it was probably the landlady of the house, who lived with the family, who was emaciated and had a chronic persistent cough and who frequently took care of the boy in the absence of the parents. The parents appeared to be well, but they and the landlady refused to be examined for tuberculosis.

On the basis of figure 7, one may speculate on the infection for which C. D., in turn, must have been responsible. The lungs contained many foci, like that represented in figure 7, with tremendous numbers of tubercle bacilli growing in colonies as in culture mediums. In microscopic sections stained for tubercle bacilli the colonies were so large as to be easily visible to the naked eye. According to his teacher's statement, he had been coughing in class for weeks. Countless tubercle bacilli must have been sprayed around the room in that time. Had it been possible to tuberculin test the children of his classroom, probably an exceptionally high incidence of reactors would have been found. Hetherington, McPhedran, Landis and Opie[6] have reported instances in which pupils have apparently widely infected their comrades in the classroom. Such infection does not commonly occur in the lower grades of grammar school, because ordinarily children in the preteen ages do not have ulcerative pulmonary tuberculosis. Occasionally, however, tuberculosis of this character does occur in children, and more commonly in Negro than in white children, as in case 3. Such cases are responsible for some proportion of the positive tuberculin reactions in children when no contact with tuberculosis is present within the family.

COMPARISON OF CASES

These three cases illustrate the same phenomenon, the presence of enormous numbers of tubercle bacilli in caseous lesions undergoing softening. In all cases the number of bacilli was much greater in the softening lesions than in the walls of old cavities. The latter, which are commonly considered the chief source of

6. Hetherington, H. W.; McPhedran, F. M.; Landis, H. R. M., and Opie, E. L.: A Survey to Determine the Prevalence of Tuberculous Infection in School Children, Am. Rev. Tuberc. **20**: 421 (Oct.) 1929.

spread of bacilli, represent a late stage in the process of excavation, and the residua of acute excavations which at their height contained huge numbers of bacilli but long previously discharged their contents.

The three cases represent fairly well three groups that may be distinguished as respects severity and rapidity of progression of pulmonary tuberculosis.

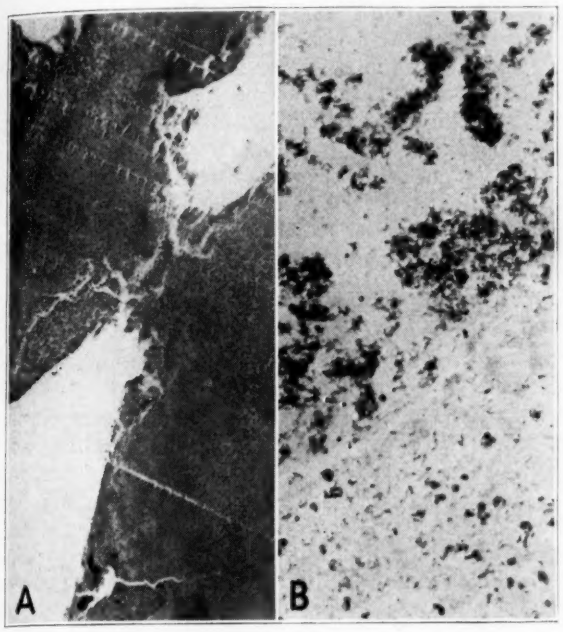

Fig. 6.—*A*, low power view (hematoxylin and eosin stain) of softening region in lung of A. S. (the softened region in upper right quadrant in figure 4). *B*, high power view of same (central region of *A*, stained for acid-fast bacteria) showing a huge number of bacilli.

These are (1) very chronic cases lasting from twenty to fifty years, traditionally common in Jews, as was the fact in case 1 of this series, but by no means confined to this race nor constant in it; (2) cases of a few years' duration, commonly less than three, seen typically as average examples of "consumption" in white adults, as in case 2, and (3) cases of rapid progression, lasting only a few months as far as can be determined clinically, seen typically in this country in Negroes, and in especially severe degree in Negro children, as in case 3. The numbers of bacilli found in the softening lesions, when averaged for several regions in each type, are found to be in direct proportion to the severity of the type, being most numerous in the type of case illustrated in case 3. Corresponding numbers of bacilli may be expected in the sputum. Direct evidence that such is the case is seen in the work of Opie and Isaacs [7] and of Hughes,[8] who found by a long series of Gaffky counts that the average number of tubercle bacilli in the sputum from progressive pulmonary tuberculosis is much greater in Negro than in white patients. The chances for infection in the neighborhood of Negro patients are therefore presumably greater.

THE NATURE OF THE PHENOMENON

Neither the cause of the softening of caseous nodules nor the explanation of the enormous number of tubercle bacilli present is definitely known. It is commonly taught that softening is due to the proteolytic action of leukocytes, present as a result of secondary bacterial invaders or as a direct response to the tubercle bacilli themselves. But softening occurs quite as commonly in the absence of leukocytes as in their presence. In the cases here illustrated (figs. 3, 6 and 7) leukocytes were not particularly numerous in the softening regions. The phenomenon is not equivalent to suppuration.

Occasionally bacteria and fungi, not chemotactic for leukocytes but possibly rich in proteolytic enzymes, are present. This was true in case 2 of this series, but softening is common when such microbic forms are not present and when nothing can be distinguished microscopically but disintegrating caseous matter and tubercle bacilli.

It has frequently been suggested that softening is an allergic process comparable to the Koch phenomenon, representing a reaction between tubercle bacilli, with their content of tuberculin, and highly hypersensitive tissue. Huebschmann [3] considered softening "the most intense reaction of hypersensitiveness to be encountered in the human body." He felt that clinical correlation with it might be detected. Pagel [9] presented experimental evidence for the allergic nature of the phenomenon. Jaffé [10] recently stated with regard to the infraclavicular infiltrations that these much discussed lesions, "with their massive exudation and quick liquefaction, carry the earmarks of an allergic inflammation." There are, however, several objections to the view that all softening of this character is on an allergic basis. The chief of these is the fact that the allergic state, as far as it can be measured by the tuberculin skin reaction, is commonly of low degree in late stages of the disease when softening and resultant excavation are at their height. In case 3, which illustrated the highest

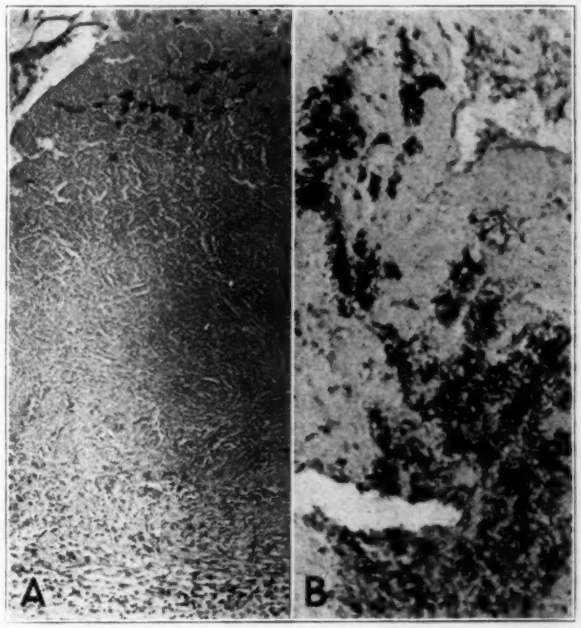

Fig. 7.—*A*, low power view (stained for acid-fast bacteria) of softening region in lung of C. D. *B*, high power view of same (from upper quarter of *A*, same stain), showing a huge number of bacilli.

degree of softening and multiplication of bacilli in the cases here recorded, the tuberculin reaction was only one plus to 0.01 mg. of old tuberculin six months before death. Commonly the reaction is negative shortly

7. Opie, E. L., and Isaacs, E. J.: Tuberculosis in Jamaica, Am. J. Hyg. **12**: 1 (July) 1930.
8. Hughes, J.: A Technic for Estimating the Number of Tubercle Bacilli in Sputum, Am. Rev. Tuberc. **28**: 279 (Aug.) 1933.
9. Pagel, W.: Studien über tuberkulöse Erweichung, Beitr. z. Klin. d. Tuberk. **76**: 414, 1931.
10. Jaffé, R. H.: Pathogenesis of Postprimary Progressive Tuberculosis of the Lungs, Arch. Path. **18**: 712 (Nov.) 1934.

before death. It may be, however, that some other type of sensitization than typical tuberculin allergy is concerned, as has recently been suggested by Lurie.

Lurie [11] has shown that the phenomenon of softening and multiplication of bacilli is in every way comparable in experimental tuberculosis to that seen in human cases. He has found repeatedly that coincident with the softening of tubercles in rabbits a huge increase in the number of bacilli can be demonstrated both by comparative counts of bacilli present in unsoftened and softened lesions and by plating out equivalent weights of the two types of tissue and counting the colonies cultured.

It is not yet clear whether this tremendous growth of tubercle bacilli precedes or follows the softening. If the former, the nutritional factors permitting the multiplication are hard to understand; in this case, however, the large number of bacilli present might well be the cause of the softening. If subsequent research proves that the softening comes first, the multiplication of bacilli can be explained on the basis of the new opportunity afforded by the softening for oxygen ingress and flow of fluids containing nutritive elements.

CLINICAL ASPECTS OF PHENOMENON OF SOFTENING

It is questionable whether softening lesions can be recognized clinically. Exacerbations of cough may have this origin, but obviously there is nothing constant about cough at any time. The areas are as a rule multiple and too small (fig. 4) to yield distinctive physical signs. Roentgenograms do not distinguish unsoftened and softening caseous nodules until the latter progress to small cavities. Softening may be suspected only by inference from the general course of the case. It is of constant occurrence in rapidly progressive cases.

Yet it is a matter of vital concern in the treatment of tuberculosis. The disease spreads, inside of the lung and in the outside world, largely because of the vast numbers of tubercle bacilli in the softened areas. The ideal treatment, for the sake of the patient and of those around him, is one that will prevent this spread. The only method of absolute prevention would be obstruction of the outlet. Tuberculous regions, unlike abscesses due to pyogenic bacteria, do not tend to "point" and so may be imprisoned with safety. Localization approaching that from complete obstruction may result from mere nonmovement of the lung, for in a motionless lung no active force is in play that will lead to discharge of the softened contents. The retention of this highly infective material is not as dangerous as might be supposed. Investigations in this laboratory indicate that such lesions, if they cannot drain, commonly become encapsulated, and the huge numbers of bacilli tend to die off, presumably for want of nutriment and oxygen.

Relaxation of the lung, with kinking of the soft-walled bronchioles into which softened regions drain, kinking of the type stressed as favorable by Coryllos,[12] will also tend to prevent escape of the highly infective contents. Either effect may be the result of proper pneumothorax. Improper pneumothorax, which in this case would be pneumothorax with positive pressure, might well result in expulsion of the semiliquid, bacillus-rich mass and aspiration into healthy parts of the lungs.

In any event, in the treatment of pulmonary tuberculosis by lung collapse, the matter of freshly softening caseous nodules should be kept in mind. In general clinical practice the collapse of cavities has been used as a gage of the success of pneumothorax, and the change of the patient from the sputum-positive to the sputum-negative state is commonly credited to the cavity collapse. As a matter of fact, this change must be attributed to the retention of the soft matter of small liquefying tubercles as much as or more than to the obliteration of cavities, the walls of which are ordinarily poor in bacilli as compared with the zones of fresh softening. Therefore in the procedure of lung collapse and search for improvement in its technic, the pathologic process of softening of caseous nodules should be considered of first importance.

SUMMARY

1. Tuberculosis in its epidemiologic aspects has its source in a specific pathologic phenomenon, softening of the caseous tubercle.

2. The phenomenon of softening of the tubercle has long been recognized but not commonly identified as a specific pathologic process, distinct from caseation.

3. The significance of softening of the caseous tubercle for epidemiology lies in the fact that associated with it is an enormous multiplication of tubercle bacilli. The latter are commonly hundreds or thousands of times as numerous in the semiliquid contents of softening caseous nodules as in the necrotic walls of old cavities.

4. Three types of case (illustrated by reports in this article) may be distinguished in a general way on the basis of the number of bacilli in the softening regions, a chronic type with a moderate concentration of bacilli in the softening lesions, an intermediate type, and an acute type with vast numbers of bacilli.

5. The fundamental nature of the process of softening is still unknown. It is not equivalent to suppuration. Attempts to put it on an allergic basis have not been entirely successful.

6. The softening tubercle should receive more clinical consideration than is at present the case. Successful treatment of tuberculosis by lung collapse owes its favorable outcome as much to prevention of drainage of liquefying tubercles as to the obliteration of large cavities. Lung collapse, improperly applied, particularly with excessive pressure, even when obvious cavities are obliterated, may result unfavorably through expulsion of highly infective liquefying matter into tributary bronchioles. The most appropriate lung collapse, as far as the softening tubercle is concerned, is that which stops motion of the lung and partially or completely obliterates the small bronchiolar outlets from the liquefying masses.

Seventh and Lombard streets.

11. Lurie, M. B.: A Correlation Between the Histological Changes and the Fate of Living Tubercle Bacilli in the Organs of Reinfected Rabbits, J. Exper. Med. **57**: 181 (Feb.) 1933.

12. Coryllos, P. N.: How Do Rest and Collapse Treatment Cure Pulmonary Tuberculosis? J. A. M. A. **100**: 480 (Feb. 18) 1933.

Origin of the Name Protein.—In 1838 the Dutch chemist Mulder separated and described such a material and, believing it to be the fundamental constituent of tissues, he gave it the name protein, derived from the Greek verb meaning "to take the first place." While Mulder's chemical work did not prove to be of great permanent value, the word which he coined has lived and is used essentially as he intended, except that now we know so many such substances that the term usually takes the plural form.—Sherman, H. C.: Food and Health, New York, Macmillan Company, 1934.

BLOOD VESSEL TUMOR OF THE SPINAL CORD IN A BOY AGED NINE YEARS

WITH SPECIAL REFERENCE TO A NEW DIAGNOSTIC SYNDROME

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AND
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Blood vessel tumors and varices of the spinal cord are rare. Globus and Doshay [1] in their comprehensive review of the subject in 1929 were able to collect only fifty-eight cases from the literature, which include three distinct pathologic entities. There have been reports of five new cases since that time, making a total of sixty-three cases. Of the total number, about 10 per cent were purely arterial or presented an arterial component. The remaining 90 per cent were composed of about equal numbers of true neoplastic hemangiomas and of venous dilatations; the latter are not neoplastic formations but have been included in all reviews of the subject, presumably because of the similarity of the clinical syndrome. Guillain [2] reports one other instance in which both conditions were found. In most cases the lesion has not been fully exposed at operation and the suspicion may be entertained that in at least some of the cases described as simple vascular dilatations a true neoplasm has also been present. Only one case of blood vascular cord tumor has been reported, prior to the present one, in an individual under 10 years of age.[3] The illustration of the lesion in Cobb's report shows a mass of dilated veins such as was found at the first laminectomy in our case.

REPORT OF CASE

E. S., an American schoolboy, aged 9, admitted to Stanford University Hospital, Jan. 17, 1934, complained of pain in the lower part of the back of fourteen months' duration. Adenotonsillectomy had been performed shortly before, during an acute attack of tonsillitis. After the operation he was very ill with a high fever. Four days later he began to have lumbar pain, which persisted till the time of admission. When he began to walk, about the fifth day after the adenotonsillectomy, his legs were weak and he walked "bent over like a little old man." The weakness of the legs became gradually worse and finally, about a month before entering the hospital, he became completely bedridden. His illness was punctuated by periods of severe sciatic pain and by attacks of muscle cramps, which would double him up into grotesque postures for hours or days at a time. He lost a great deal of weight. There was some dribbling of urine and one attack of complete retention during the two or three months before admission.

On physical examination there was a marked generalized emaciation, most apparent in the legs. The lower part of the spine was fixed in a smooth kyphosis and there was tenderness to jarring over the lower three lumbar spines. The erector spinae muscles and those of the buttocks and posterior part of the thighs were extremely atrophied and were practically powerless. The knee jerks were absent. The achilles jerks were hyperactive, with a poorly sustained clonus on the right. The Babinski sign on both sides was positive. The abdominal reflexes were absent except in the left upper quadrant. The cremasteric reflexes were absent. Temperature and deep pain sensations were diminished in the legs up to the groin, but there was no sharp sensory level. Position and touch sensations were intact.

Results of Spinal Puncture

Case	Author	Lesion	Location	Pressure	Cells	Xanthochromia	Protein	Queckenstedt Test	Iodized Oil
1	Cobb [3]	Varices	T6–T10	Increased	20				
2	Blahd, M. E.: J. A. M. A. **80**: 1452, 1923	Varices	T8–T11	Increased	11	..	Increased	(—)	
3	Sargent [4]	Varices	T6–T12	.....	5	+	0.1 %	..	No block
4	Kortzeborn, A.: Zentralbl. f. chir. **56**: 868, 1929	Varices	T8–T11	.....	..	..	.....	..	Distributed T9-L1
5	Globus and Doshay [1]	Varices	T3–T4	Called normal; no details					
6	Rand [5]	Varices	T11–L2	.....	7	+	Coagulated		
7	Globus and Doshay [1]	Varices	L3–S1	.....	6	..	.....	10-14 cm.	No block
8	Globus and Doshay [1]	Varices	L3	.....	..	(—)	.....	(—)	
9	Sargent [4]	Varices	L1	.....	..	+	0.6%		
10	Adson, A. W., and Ott, W. O.: Arch. Neurol. & Psychiat. **8**: 520, 1922	.....	Lumbar	.....	5	(—)	Normal		
11	Globus and Doshay [1]	Large vein	T7–T11	Increased	2	(—)	.....	(—)	
12	Sargent [4]	Angioma	T10–L2	.....	30	..	Increased	..	Partial block
13	Cabot case: Boston M. & S. J. **197**: 441, 1927	Angioma	C8–T10	Low	..	+	.....	+	Distributed C8-T12
14	Urechia, C. I., and Elekes, N.: Rev. Neurol. **2**: 557, 1932	Angioma	D4	.....	3	..	Increased	..	Block D4
15	Russell, D. S.: J. Path. & Bact. **35**: 103, 1932	Angioma	C7–C8	.....	1	+	0.4%	..	Block C6
16	Guillain, Schmite and Bertrand [2]	Large vein, angioma	C8–S1 T6	22	1	..	(1.25 Gm.) Increased	..	No block
17	Black and Faber	Varices, angioma	T9–T11 T12–L2	20	Many R.B.C.	+	Coagulated	(—)	Distributed T8-T10

LABORATORY REPORTS

Roentgenograms of the spine showed no bone disease but did reveal kyphosis and scoliosis.

Examination of the blood showed: hemoglobin, 80 per cent; erythrocytes, 5,000,000; leukocytes, 7,700; polymorphonuclear neutrophils, 50 per cent; lymphocytes, 41 per cent. The urine was normal. The tuberculin test was positive (1:2,000 intracutaneous). The blood Wassermann reaction was negative. The sedimentation rate was 8 mm. in one hour. There was no reaction of degeneration.

On lumbar puncture the fluid was markedly xanthrochromic and coagulated spontaneously, with a pressure of 20 cm. The Queckenstedt test was definitely and repeatedly negative on several trials. Pressure over the jugular veins caused the fluid to rise promptly in the manometer, and when the jugular pres-

From the Department of Pediatrics, Stanford University School of Medicine.

1. Globus, J. H., and Doshay, L. J.: Venous Dilatations and Other Intraspinal Vessel Alterations, Including True Angiomata with Signs and Symptoms of Cord Compression, Surg., Gynec. & Obst. **48**: 345 (March) 1929.
2. Guillain, G.; Schmite, P., and Bertrand, I.: Hémangioma médullaire, Rev. neurol. **1**: 420 (March) 1932.
3. Cobb, Stanley: Hemangioma of the Spinal Cord, Ann. Surg. **62**: 641, 1915.

sure was removed the fluid level fell promptly to the original level. After 5 cc. of spinal fluid was withdrawn, however, the pressure fell to zero, the Queckenstedt test became positive and no more fluid could be obtained. Straining and jugular pressure would produce only a few drops more and then air went back into the needle, showing it still to be in place.

On cisternal puncture 0.75 cc. of descending iodized poppyseed oil was injected. Roentgenograms showed a curious distribution of the oil in droplets of varying size from the eighth to the tenth thoracic vertebra. (fig. 1).

January 25 a laminectomy was performed by Dr. E. B. Towne. The arches of the ninth, tenth and eleventh thoracic vertebrae were removed. The dura pulsated in the upper two thirds of the field. The dura was opened, the arachnoid being left intact. Through the latter could be plainly seen a tangled mass of large veins, from 0.5 to 2 mm. in diameter, over and around the cord. The bulk of the cord seemed to be increased. In the upper and lower fourths of the operative field a considerable area of spinal cord could be seen between the enlarged and tortuous veins. Droplets of iodized oil could be seen collected around and between the coil of veins in the upper part. No arterial component was found. The dura was left open and the wound closed.

Fig. 1.—Roentgen appearance of 0.75 cc. of descending iodized poppyseed oil, seen in anteroposterior projection, distributed from the eighth to the tenth thoracic vertebra.

For a while after the operation the patient did well. He was given 800 roentgens of high voltage therapy in four days. On the eighth postoperative day he could stand. The knee jerks returned and the ankle clonus disappeared. The degree of sensory loss diminished. The Babinski sign remained positive on both sides. Within a month he was able to walk from twenty to thirty steps unassisted. Then occurred the first of his setbacks, of which he has had four to date, consisting of sudden increase in the muscular weakness of the legs, occurring every month or two with gradual improvement between, each exacerbation being more severe than the last. After the fourth of these exacerbations on physical examination the lower extremities showed a complete flaccid paralysis, except for slight motion at the hip on the right and a little more motion at the hip on the left. All deep reflexes in both legs were absent. Atrophy of the muscles was more marked than before. The ankles were swollen. Touch, pain and temperature sensations were somewhat diminished up to the groin, but there was no definite sensory level. The position sense remained intact. Another lumbar puncture was performed. The changes were identical with those encountered four and a half months before: The Froin syndrome was present and Queckenstedt's sign was negative, becoming positive after the removal of 5 cc. of fluid. The pressure on this occasion was 25 cm.; 0.5 cc. of descending iodized poppy-seed oil was injected into the lumbar sac and roentgenograms, after inversion of the patient, showed the lower border of the lesion to be at the level of the second lumbar vertebra, three segments below the lower border of the previous operation.

Dr. Towne performed a second laminectomy, June 23. The arches of the twelfth thoracic and the first, second and third lumbar vertebrae were removed and the lesion was found to extend to the lower border of the second lumbar vertebra, where it appeared to end. The notable differences between the appearance of the lesion on this occasion and that seen previously were that there was definite erosion from pressure of the laminae of the second lumbar vertebra, and the tumor pressed out the dura more than before—so much so that it was with some apprehension that the dura was opened over it. When this was done a picture quite different from that seen at the previous operation was revealed. There was a large red, homogeneous tumor; no varices were seen. It seemed certain that this was a hemangio-endothelioma It did not seem safe to excise a piece for microscopic examination.

The boy was given another course of high voltage roentgen therapy. At the present time, two months later, he is slightly better than he was before the second operation.

Cases of the sort under consideration have proved difficult to diagnose prior to operation. Globus and Doshay [1] undertook their study with the professed hope that analysis of the cases would provide some means of making clinical diagnosis possible but concluded that there are no specific diagnostic features. Sargent [4] first emphasized the characteristic variability of symptoms and physical signs from time to time during the clinical course of the disease. In only two instances has an angioma of the overlying skin segment given a clue to the spinal cord lesion.[5] Referring to the value of special procedures, Globus and Doshay [1] state that laboratory, manometric and iodized oil tests have not been carried out systematically and hence offer no data which would permit of an analysis. The accompanying table shows the changes in each of the seventeen cases that have been so studied.

In only four of the sixteen cases, all reported by Globus and Doshay,[1] were the results of spinal puncture entirely normal (cases 5, 7, 8 and 11). It is worthy of note, in view of the observations made in our case, that the Queckenstedt sign was positive only once (case 13), an instance in which the lesion occupied nearly the entire subarachnoid space from one end of the cord to the other. Further, in two cases (7 and 13) out of eight in which iodized oil had been injected, a distribution of the droplets similar to that in our case has been present, and in one of the remaining cases (12) "partial obstruction" was present. In two others (cases 14 and 15) there was a complete block to iodized oil. In case 3 there was xanthochromia without any evidence of block to iodized oil, which Bucy [6] suggests is probably due to transudation of serum and blood pigments, which discolors the spinal fluid above as well as below the tumor. He reports a case in which xanthochromia without obstruction was found above a blood vascular tumor and led an unwary surgeon into operating at the wrong level.

Fig. 2.—Lateral view.

4. Sargent, P.: Hemangioma of the Pia Mater Causing Compression Paraplegia, Brain **48**: 259 (June) 1925.

5. Cobb,[3] Rand, C. W.: Hemangioma of the Spinal Cord, Arch. Neurol. & Psychiat. **18**: 755 (Nov.) 1927.

6. Bucy, P. C.: Blood Vessel Tumors of the Spinal Canal, S. Clin. North America **12**: 1323 (Oct.) 1932.

It is apparent that our case presents a unique combination of spinal fluid changes. The conjunction of the Froin syndrome with a negative Queckenstedt test, which becomes positive when the lumbar sac is drained of a relatively small amount of fluid, could probably not be produced by any type of lesion other than the one under consideration. The vascular tumor, whether composed of varices or smaller vessels, transmits pressure from the subarachnoid space above to the lumbar sac below, thus acting essentially as a column of liquid, even though there is no direct communication between the two. However, when the fluid is drawn off below and the tumor sags down under the unopposed pressure from above, the attachments of the tumor are drawn tight, producing an obstruction in the spinal canal like that of a solid tumor and so causing the Queckenstedt test to become positive.

Worthy of special attention is the peculiar distribution of iodized oil in droplets over two or more segments, present in the case here described and in two others (cases 4 and 13). The combination of such a distribution of iodized oil, a Froin syndrome, and a Queckenstedt test changing from negative to positive after the removal of spinal fluid below the lesion affords a characteristic and probably pathognomonic picture of subarachnoid varices and vascular tumors large enough to cause obstruction.

The progress of the case here reported harmonizes with the pessimistic view expressed by Sargent [4] and Rand [5] that operation is of little or no permanent value. Globus and Doshay [1] believe that operation affords some benefit as the result of decompression. Our patient was slightly improved after operation but only for a short time. Spontaneous remissions, especially in cases of varices, have been repeatedly noted and may explain temporary improvement as well as does decompression. High voltage roentgen therapy was without detectable effect.

SUMMARY

In a case of intradural venous blood vascular tumor, probably hemangio-endothelioma with associated varices, in a boy aged 9 years, the combination noted of the Froin syndrome, a negative Queckenstedt test becoming positive after withdrawal of spinal fluid below the lesion, and a peculiar distribution of iodized oil in droplets, suggests that it may be pathognomonic of subarachnoid varices and vascular tumors of the cord large enough to obstruct the subarachnoid space.

Clay and Webster streets.

The Limitations of Mental Testing.—All sorts of tests have been devised for all sorts of purposes; particularly, and the best known, is the test of intelligence which, as it is now used, is used in the form of the Stanford modification of the Binet-Simon. This test has now been in use for many years and yet if we tried to find out what this intelligence is that we are testing we would find that no one knows. Intelligence up to the present time is indefinable. It is so complex and so intricate that it eludes any effort to compress it into a single formula. This has finally become obvious to the people who are engaged in this work themselves, and so instead of speaking of intelligence they speak of "test intelligence," which is equivalent to saying in response to the question "What is this intelligence that you test?" "It is that which is tested by the intelligence tests." Nevertheless, again we discover that by using these tests we have unearthed an enormous amount of information.—White, W. A.: The General Implication of Psychiatric Thought, third of the Thomas W. Salmon Memorial Lectures, read before the New York Academy of Medicine, April 26, 1935.

ECZEMA VACCINATUM: ITS RELATION TO GENERALIZED VACCINIA

REPORT OF TWO CASES

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Reports of cases of eczema vaccinatum in the American literature are relatively few, and the fact that this disease and generalized vaccinia are basically the same is not generally accepted.

The vaccine virus used today is a smallpox virus that has been attenuated by many passages through calves, and Schamberg and Kolmer [1] state that this attenuation is permanent and irreversible even by innumerable transfers. The virus in a case of variola is definitely disseminated by the blood stream, but that the vaccine virus is also disseminated in this manner is not universally recognized.

Fig. 1 (case 1).—Appearance September 15 (biopsy taken the same day) on about the fifth day of the eruption, showing the extensiveness of the lesions and their tendency to become confluent.

Gins and his coworkers [2] demonstrated that the virus in an uncomplicated case of vaccinia was present in the throat on the third and fourth days after vaccination and then disappeared even before the take developed. They also showed that the virus could be found at about this time in the internal organs such as the liver, spleen and brain. Paschen [3] gave a full discussion of the observations of the various investigators on the proof of whether the vaccine virus enters the general circulation after cutaneous inoculation. He concluded that in many cases, if not in all, the virus is disseminated by the blood stream sometime after vaccination.

CUTANEOUS REACTIONS DUE TO THE VIRUS

In this article only those skin eruptions will be considered which are directly due to the virus itself and in which the etiologic agent can be proved by performing Paul's test [4] (inoculation of the virus on a rabbit's cornea) on the suspected lesion.

The importance of these fortuitous eruptions was shown by Blockmann's [5] review of the literature from 1880 to 1904. His eczematous son developed an eczema vaccinatum accidentally from an older vaccinated

From the Department of Dermatology, University of Maryland School of Medicine and College of Physicians and Surgeons.

1. Schamberg, J. F., and Kolmer, J. A.: Acute Infectious Disease. Philadelphia, Lea & Febiger, 1928, p. 97.
2. Gins, H. A.; Hackenthal, H., and Kamentzewa, N.: Neue Erfahrungen und Versuche über die Generalisierung des Vakzinevirus, Centralbl. f. Bakt. **110:** 115-118 (Jan. 24) 1929.
3. Paschen, E.: Inokulation der Vaccine auf bereits vorher veränderte Hautpartien, in Jadassohn: Handbuch der Haut- und Geschlechtskrankheiten **2:** 240.
4. Michelson, H. E., and Ikeda, Kano: Microscopic Changes in Variola, Arch. Dermat. & Syph. **15:** 138 (Feb.) 1927.
5. Blockmann, F.: Ist die Schutzpockenimpfung mit allen notwendigen Kautelen umgeben? Erörtert an einem mit Verlust des einen Auges verbundenen Falle von Vaccineübertragung, Tübingen, F. Pietzker, 1904.

brother. Lesions developed mostly on the eczematous areas but also on the right cornea, which caused blindness in the affected eye. Blockmann collected 135 cases of vaccinia with fortuitous lesions, twenty of which were in eczematous children, six of which were fatal. Forty-six of the 135 cases presented ophthalmic lesions, but the exact extent of this complication was not usually stated, although some did result in blindness. Of the 135 patients, only twenty had definitely never been vaccinated. Accidental vaccinia is relatively common and its danger depends primarily on the site. Nebenpocken is the development of vaccinia lesions in the region about the site of the take. This type of reaction is seen only occasionally, and is due to local spread of the virus by scratching or by way of the lymph spaces. It is practically harmless, only increasing the amount of scarring necessary for a successful take.

Generalized vaccinia is considered as that type of reaction to vaccination in which lesions develop on the normal skin on distant parts of the body. These lesions may occur concurrently with the original inoculation or a few days later. If later, the lesions tend to become more and more atypical or of an abortive type. All authors on this subject agree that the virus is disseminated by the blood stream when this complication occurs. The frequency of generalized vaccinia lesions in vaccination cases is estimated by Danziger [6] in 900,000 cases as one in about every 30,000 cases and by Anders [7] on the basis of 3,000,000 vaccinations as one in 40,000. Marick [8] reported a case in the American literature, which occurred in a girl, aged 3 years, who had a severe primary take; as this began to involute, successive crops of generalized pustules appeared on the normal skin, accompanied by mild general symptoms and fever. This condition persisted for four weeks. Froumy's [9] experiences with generalized vaccinia are unique and frequently cited. He revaccinated 175 cadets with the same vaccine; fifty-five had no reactions, but twelve had generalized eruptions, four of which were severe and one was fatal. Cases of generalized vaccinia have also been reported by Haslund,[10] Swoboda,[11] Althoff,[12] Korach,[13] Groth,[14] Chalke,[15] Pautrier,[16] Anders [7] and Shortt.[17] Anders' and Shortt's cases were fatal, and Haslund's patient had been vaccinated successfully many years before.

Fig. 2 (case 1).—Discrete and fusing vesiculopustules on the arm and chest. Note the opalescent, elevated and umbilicated lesions characteristic of vaccinia.

Eczema vaccinatum is essentially a generalized vaccinia occurring in a patient who has a skin eruption, usually an eczema. It may occur in secondary syphilis (Danziger), impetigo and the like and is thought by most authors to be due to auto-inoculation of the virus from the operative wound to the diseased areas.

Templeton's [18] case was very unusual. Unknown to him, his patient was vaccinated two days before he removed about ten moles from her face and neck. A primary type of reaction developed in the vaccinated area and in the desiccated lesions. Templeton did not state whether the wounds were dressed or if an antiseptic was applied.

In 1882 Martin [19] reported a case of eczema vaccinatum in a 7 months old eczematous boy, who, Martin thought, was inoculated by way of the intestinal tract after being nursed by the infant's recently vaccinated mother. Contact between the eczematous child and another brother, who was vaccinated at the same time as the mother, was disclaimed. Recently Platou [20] reported a fatal case in an eczematous infant. An excellent illustration accompanies the article.

Cases of this type have been reported by Sprengel,[21] Werther,[22] Jessner,[23] Finkelstein,[24] Steiner,[25] Eichhoff,[26] Lortat-Jacob,[27] Kobrak,[28] Kritz,[29] Géronne,[30] Gaté,[31] Esquier and Germain,[32] Uffenheimer,[33] Hegler,[34] Haslund,[10] and Kaiser and Blass,[35] making a total

6. Danziger, F.: Ueber Vaccine generalisata, München. med. Wchnschr. **54:** 1583, 1907.
7. Anders: Ueber einen fall von allgemeinen Kuhpocken (Vaccina generalisata) mit tödlichem Ausgange, Ztschr. f. Hyg. u. Infektionskr. **88:** 116, 1919.
8. Marick, S. W.: Generalized Vaccinia: Report of a Case of True Vaccinia, Arch. Pediat. **49:** 552 (Aug.) 1932.
9. Froumy, cited by Haslund, A.: Vaccina generalisata und deren Pathogenese, Arch. f. Dermat. u. Syph. **48:** 371, 1899.
10. Haslund, A.: Vaccina generalisata und deren Pathogenese, Arch. f. Dermat. u. Syph. **48:** 205 and 371, 1899.
11. Swoboda, N.: Ueber Vaccina generalisata, München. med. Wchnschr. **55:** 1475, 1908.
12. Althoff: Ein Fall generaliserter Vakzine nach spontaner Infection, Med. Klin. **19:** 275 (March 4) 1923.
13. Korach, S.: Ueber Vaccina generalisée, Deutsche med. Wchnschr. **51:** 1403 (Aug. 21) 1925.
14. Groth, A.: Beiträge zur Kenntnis der Neberpocken im Verlaufe der Vaccination, sowie der postvaccinalen Exantheme, München. med. Wchnschr. **50:** 108, 1903.
15. Chalke, H. D.: Observations on Skin Eruptions Following Vaccination, Lancet **1:** 578 (March 14) 1931.
16. Pautrier, L. M.: Eruption generalisée consécutive à une vaccination, Bull. Soc. franç. de dermat. et syph. **36:** 481 (June) 1929.
17. Shortt, C.: A Case of Generalized Vaccinia, Brit. M. J. **1:** 1004-1005 (June 10) 1933; Lancet **1:** 580 (March 18) 1933.
18. Templeton, H. J.: Postvaccinal Cutaneous Reactions, J. A. M. A. **81:** 2115 (Dec. 22) 1923.
19. Martin, H. A.: A Most Rare, Possibly Unique, Case of General Eruption of Vaccine, M. Rec., New York **21:** 393, 1882.
20. Platou, E. S.: Eczema Vaccinatum, Am. J. Dis. Child. **48:** 333 (Aug.) 1934.
21. Sprengel, H.: Ein Fall von Vakzineinfektion bei einen Ekzemkranken, Dermat. Wchnschr. **92:** 645 (May 2) 1931.
22. Werther: Eczema vaccinatum, Zentralbl. f. Haut- u. Geschlechtskr. **14:** 300, 1924.
23. Jessner, Max: Zwei Fälle von vacciniester Dermatose (sogenannt Ekzema vaccinatum), Zentralbl. f. Haut- u. Geschlechtskr. **13:** 238, 1924.
24. Finkelstein, H.; Galewsky, E., and Halberstaedter, L.: Hautkrankheiten und Syphilis im Säuglings- und Kindesalter, Berlin, Julius Springer, 1922, pp. 10 and 56.
25. Steiner, R.: Generaliserte Vakzine nach Ekzema vaccinatum, Jahrb. f. Kinderh. **114:** 192, 1926.
26. Eichhoff, P. J.: Ein neuer Fall von Vaccineinfektion, Deutsche med. Wchnschr. **34:** 1475, 1908.
27. Lortat-Jacob, L.: Vaccine generalisée par inoculations multiples chez une malade de prurigo eczematisé, Bull. Soc. franç. de dermat. et syph. **30:** 156, 1923.
28. Kobrak, Erwin: Infection eines Kindes mit generalisierter Vakzine; übertragen von den normalen Impfpusteln des Bruders, Med. Klin. **4:** 1540, 1908.
29. Kritz: Case Report, München. med. Wchnschr. **54:** 1845, 1907.
30. Géronne, A.: Ueber Vaccineerkrankungen und ihre Prophylaxe, Berl. klin. Wchnschr. **47:** 133, 1910.
31. Gaté, J.; Michel, P. J., and Boyer, C. E.: Vaccine étendue du visage et du cou chez un enfant atteint d'eczéma de la joue: Décès; encéphalite probable, Bull. Soc. franç. de dermat. et syph. **39:** 46 (Jan.) 1932.
32. Esquier and Germain: Un cas de vaccine avec localisation aux deux joues chez un nourrisson de 13 mois, Bull. Soc. franç. de dermat. et syph. **39:** 1401 (Nov.) 1932.
33. Uffenheimer: Case Report, München. med. Wchnschr. **54:** 1962, 1907.
34. Hegler, C.: Ueber generalisierte Vakzine, Dermat. Wchnschr. **58:** 29, 1914.
35. Kaiser, M., and Blass, G.: Ein "pockenverdächtiger Fall" von Eczema vaccinatum mit folgender generalisierter Vaccine, Arch. f. Dermat. u. Syph. **164:** 357, 1931.

of twenty-two cases. The age varied from several months to 42 years, and five of the cases were fatal. Paul's test was made in two cases and both were positive.

Danziger [6] reported the occurrence of six cases within a period of eleven days with a vaccine that gave many normal takes. Most of the inoculations were accidental and one was fatal. He also mentioned ten other cases which he had previously seen, and he stated that the disseminated lesions were due to auto-inoculation. Busch [36] cited a case in an eczematous boy who had two attacks within a period of four years. The second eruption was fatal and lesions occurred even in the scars caused by the first attack.

REPORT OF CASES [37]

CASE 1.—Stanley S., aged 3, was one of twins, both of whom had eczema. The eczema first appeared on Stanley when he was 19 months old and was of the severe infantile type, occurring mostly on the face and arms, with a tendency to moderate remissions and marked exacerbations. He was first admitted to the University Hospital in October 1931 because of marked eczema of the face and scalp and to a less extent over the rest of the body. Much secondary infection was present and two positive blood cultures were obtained, which showed Staphylococcus haemolyticus. The rectal temperature varied from 100 to about 104 F., and the leukocyte count averaged 15,000, with 20 per cent eosinophils. While in the hospital he contracted mumps and was discharged soon afterward, March 1, 1932, unimproved. He was readmitted March 25, 1932, to be put on a milk-free diet, but whooping cough developed and he was again discharged. At this time his leukocyte count varied between 15,000 and 20,000, with 6 per cent eosinophils.

Fig. 3 (case 1).—Section under low power of a lesion in the vesiculopustular stage, with marked destruction of the epidermis. Note the dense polymorphous infiltrate in the rete and subepidermal layers. Figure 4 is a high power view of the area marked *A*.

The patient was admitted to the Bon Secours Hospital July 14 and was discharged September 2. Here his improvement was moderate and the clinical course was negative, except for occasional peaks of fever up to 103 F. About the first of September his older brother Joseph was vaccinated in preparation for entering school and a large take developed about 4 by 5 cm. in diameter. September 12, Stanley was readmitted to the University Hospital because many discrete pustules had appeared about the face and later on the rest of the body. The pustules were round or oval, about 1 cm. in diameter, raised, pearly white or opalescent, and rapidly became umbilicated, later fusing and finally covering the face with a thick purulent crust. The child was very toxic, with marked abdominal distention and a fever that varied between 103 and 104 F. On the morning of the seventeenth, the possibility of variola was suggested and the patient was taken to an isolation hospital, where he died the next day.

A biopsy was performed September 15, from two fusing lesions on the abdomen that were beginning to become delled.

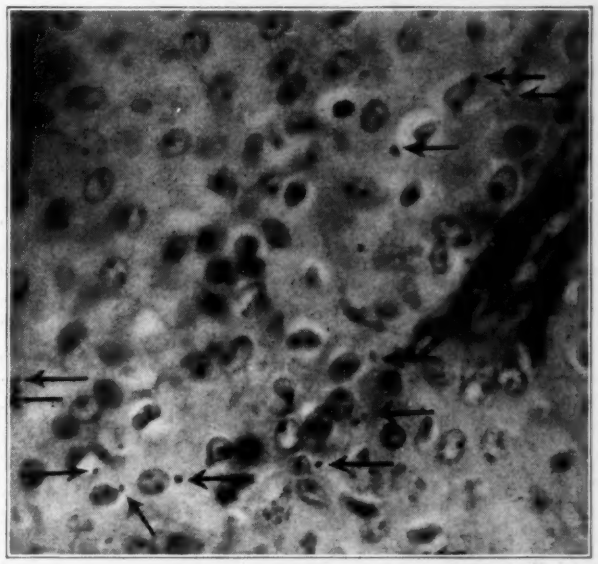

Fig. 4 (case 1).—Section under high power. The intracellular edema and the pathognomonic intracellular extranuclear "Guarnieri" inclusion bodies (denoted by the arrows) are clearly shown.

Under low power there was a partially destroyed hair follicle separating the two lesions, which were in a vesiculopustular stage. The infiltrate and débris were greatest in the region of umbilication. There was a thin layer of stratum corneum present over the entire lesion, but in many areas most of the epidermal tissues were destroyed, leaving only occasional islands of squamous cells, which were apparently parts of hair follicles. About the border of the lesion the interpapillary pegs were elongated and broadened, and the cells themselves were paler and larger then usual, with some in various stages of balloon degeneration. Under high power, occasional mitotic figures were seen, while in other areas definite inclusion (Guarnieri) bodies could be demonstrated. Below the thin stratum corneum in the area of vesiculation, which contained, besides serum, fibrin and leukocytes, were partially destroyed cells of various sorts and débris. These elements were increased in the deeper tissues, giving the entire vesicle a broad base, made up of polymorphonuclear cells in various stages of degeneration and nuclear fragments. These changes extended into the middle of the corium. Bacterial stains showed groups of organisms just below the surface of the lesion.

CASE 2.—The other twin, William, in the course of investigating contacts, was found to have many lesions on the face and body, especially about the upper left eyelid, axillae, arms, scapulae and knees. These lesions were of the same type as on Stanley, whitish, opalescent papules of from 0.75 to 1 cm. in diameter, which as they enlarged became umbilicated. He also had a few larger crusted lesions, especially on the abdomen. The child was vaccinated at this time but it did not take.

When William was seen in June 1934, a chronic dry excoriated eczema was still present about the flexor surfaces of the arms, and several oval, 1 cm. sized, nonpitted, depigmented scars were present about the axillae and knees.

The diagnosis of eczema vaccinatum was finally made for the following reasons: 1. The eczematous child who died was home just at the time when his older brother was developing a severe primary reaction due

36. Busch, N.: Ueber Eczema vaccinatum, Arch. f. Dermat. u. Syph. **167**: 471, 1933.
37. Private cases of Dr. H. M. Robinson and reported with his permission.

to vaccination. 2. The clinical course, the primary lesions and the microscopic appearance substantiated that diagnosis. 3. William, the twin brother, who also had eczema, developed an eczema vaccinatum at this time, which healed with slight scarring and subsequently his vaccination did not take. 4. Many unvaccinated infants were exposed while Stanley was in the University Hospital, but they did not develop variola.

It is regrettable that Paul's test was not made, or that Paschen bodies were not looked for in the fresh lesions.

DIFFERENTIAL DIAGNOSIS

In the diagnosis, besides variola, Kaposi's varicelliform eruptions and Juliusberg's [38] pustulosis varioliformis or vacciniformis acuta must be considered. Only variola and vaccinia will give a positive Paul test.

Concerning the term Kaposi's varicelliform eruptions, it should be understood that even up to 1900 varicella was considered a mild form of variola. These cases, as exemplified by Brown's [39] and McLachlan's [40] recent reports, usually occur in eczematous patients, and these cases cannot be differentiated from eczema vaccinatum on clinical grounds. The same applies to the disease described by Juliusberg [38] in 1898 as pustulosis acuta vacciniformis. Juliusberg in his original report mentioned that his case was similar to Kaposi's varicelliform eruptions. Recently, similar cases have been reported by Feit,[41] Baar [42] and Freud.[43] The latter author attempted a Paul test on the suspected lesions, but a severe keratitis developed. It is questionable whether Kaposi's varicelliform eruption and Juliusberg's disease will prove to be variants of some other cutaneous disease or definite entities.

Freund,[44] early in 1934, expressed the same opinion when he reported a case under the ambiguous title of "pustulosis vacciniformis acuta" (Kaposi-Juliusberg) and definitely proved the case to be eczema vaccinatum by causing a keratoconjunctivitis in a rabbit. On microscopic examination the cornea showed numerous inclusion bodies, although apparently grossly just a severe nonspecific keratitis was present. He suggested that the clinical picture in eczema vaccinatum may vary as the virulence of the vaccine virus and that of the secondary bacterial invader.

COMMENT

The vaccine virus is a modified variola virus and the latter is definitely spread through the body by the blood stream, attacking specifically the epidermal tissue. It has been stressed again and again that areas which have been traumatized, even only by pressure, tend to be attacked more than other areas. That the vaccine virus is disseminated at times by the blood stream causing generalized vaccinia is not disputed.

The fact that in eczema vaccinatum the lesions appear mostly or only in the eczematous areas does not prove that the virus arrives there by autoinoculation because, as with smallpox, the virus may be prone to develop in an area of lowered resistance. Certainly the extensiveness of many of these eruptions, their occurrence also at times in noneczematous areas and the involvement of internal organs, such as the liver, spleen and meninges, all point to clinical evidence of blood stream dissemination of the virus.

The fact that Paul,[45] by the use of a protective bandage to the operative area in an eczematous patient, prevented (?) the development of an eczema vaccinatum really proves nothing. There is no inkling in the literature of the number of patients with skin eruptions such as eczema and impetigo who do not develop a generalized vaccinia after vaccination.[46]

CONCLUSIONS

1. In a review of the literature on generalized eruptions due directly to the vaccine virus, only a few cases were found in the American literature. To these are added the two cases presented.

2. From the literature and the evidence from the cases presented, it is thought that eczema vaccinatum and generalized vaccinia are essentially the same and that in both diseases the virus is disseminated by the blood stream.

3. Eczema vaccinatum is apparently at times diagnosed Kaposi's varicelliform eruption or Juliusberg's pustulosis vacciniformis or varioliformis acuta.

104 West Madison Street.

38. Juliusberg, F.: Ueber Pustulosis acuta varioliformis, Arch. f. Dermat. u. Syph. **46:** 21, 1898.
39. Brown, W. H.: Kaposi's Varicelliform Eruption, Brit. J. Dermat. **46:** 1 (Jan.) 1934.
40. McLachlan, A. D.: Brit. J. Dermat. **46:** 8 (Jan.) 1934.
41. Feit, H.: Pustulosis Vacciniformis Acuta (Juliusberg) Followed by Anuria and Tetanic Spasticity, New York State J. Med. **33:** 645 (May) 1933.
42. Baar: Ein Fall von Pustulosis vacciniformis, Wien. med. Wchnschr. **81:** 1157 (Aug. 29) 1931.
43. Freud, P.: Wien. med. Wchnschr. **81:** 1157 (Aug. 29) 1931.
44. Freund, H.: Zur Aetiologie der Pustulosis vacciniformis acuta (Kaposi-Juliusberg), Dermat. Wchnschr. **98:** 53 (Jan. 13) 1934.
45. Paul, G.: Studie über die Aetiologie and Pathogenese der sogenannten generalisierten Vaccine bei Individuen mit vorher gesunder oder kranker Haut, Arch. f. Dermat. u. Syph. **52:** 3, 1900.
46. Dr. J. C. G. Ledingham, director of the Lister Institute of London, in a personal communication, states that the virus in vaccination is always generalized, that it tends to localize in areas of lowered resistance, that the guarnieri bodies are pathognomonic of either vaccinia or variola, and that the inoculations for diagnostic purposes are made preferably in the rabbit's skin rather than in the cornea.

Clinical Notes, Suggestions and New Instruments

DUODENORENAL FISTULA

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A fistulous communication between the duodenum and the pelvis of the right kidney, though described only casually even in the more elaborate treatises on urology, constitutes an extremely rare clinical entity. That its potentiality has been recognized since time immemorial is indicated by the fact that even Hippocrates makes mention of it in his Opera Omnia; yet in all these centuries I have found but three cases recorded in the entire medical literature.

The earliest report is that of Rayer,[1] in which he describes the case of Dr. Campaignac: A tailoress, aged 45, was admitted to the hospital, Jan. 10, 1835, and died March 6 of the same year without operation. The duodenorenal communication was discovered at autopsy. Turner [2] reports the case of a youth, aged 18, admitted to St. George's Hospital with severe hematuria and advanced tuberculous disease of the lungs. "At autopsy the right kidney was found to be scrofulous and its pelvis communicated with an abscess cavity situated in front of the organ and in contact with the colon and duodenum. There were several ulcerated openings in the second portion of the duodenum by which the bowel communicated with the abscess." There are several reports of fistulous communications between the large bowel and the kidney, typical of which is the case of d'Allaines and Rouffiac,[3] in which an opening between the colon and the left kidney existed. Recently Davis [4] reported an interesting case of ureteroduodenal fistula which he was able to demonstrate by urography.

Read before the Long Island City Medical Society, New York, Feb. 20, 1935.

1. Rayer: Traité des maladies des reins, **3:** 293, 1839.
2. Turner, cited by Perry and Shaw: Guy's Hosp. Rep. **42:** 186, 1893.
3. D'Allaines and Rouffiac: Bull. et mém. Soc. anat. de Paris **93:**324.
4. Davis, E. G.: Duodeno-Ureteral Fistula of Spontaneous Origin, J. A. M. A. **70:** 376-378 (Feb. 9) 1918.

Since careful search of the medical literature in this country reveals no record of any occurrence of true duodenorenal fistula, the following case is reported:

S. W., a white woman, aged 28, born in Germany, a hairdresser, applied for treatment at the urologic clinic of St. John's Hospital, Long Island City, N. Y., April 12, 1933. Her symptoms for the past nine months had been those of marked dyspepsia with frequent vomiting soon after eating and paroxysms of severe, lancinating pain in the right flank, radiating anteriorly, below the costal margin and down toward the groin. These attacks came on often at night, without ingestion of food, lasted from one-half to three hours, and generally assumed such an intensity that the patient was compelled to remain at home for two months. She managed to return to work, but early in December she had to be taken home during another seizure and from then until admission to the hospital she spent most of her time in bed. There was no frequency of urination until about one month prior to hospitalization, when it increased to about eight times a day and once at night, with some dysuria. The appetite was poor and vomiting was easily instigated by the ingestion of meat, condiments or sweets. The weight was 116 pounds (52.6 Kg.), the patient having lost only 11 pounds

Fig. 1.—The opaque fluid, instilled by the retrograde method, has extravasated from the right renal pelvis into the duodenum.

(5 Kg.) since the beginning of her illness. The blood pressure was 120 systolic, 68 diastolic; the temperature was 101.8 F.

Physical examination revealed the scar of an appendicectomy performed five years previously, the questionable presence of a mass in the right upper quadrant, tenderness somewhat below the right costal margin, and exquisite rebound tenderness on hammer percussion over the right costolumbar angle.

April 19, 15 cc. of a 20 per cent solution of skiodan was introduced into the right renal pelvis and 7 cc. into the left one through 5 F. shadowgraph catheters.

Figure 1 shows the dye to have extravasated from the right renal pelvis into the duodenum.

Against our advice the patient deferred entering the hospital until May 3.

The clinical examinations showed repeated catheter specimens of urine to contain usually 2 plus albumin, sometimes acid, at other times alkaline, and the pus on microscopy would vary from 10 cells per low power field to a heavy sediment. The blood counts showed a variation in leukocytes from 12,000 to 22,000; in erythrocytes from 3,170,000 to 4,200,000; in hemoglobin from 59 to 80 per cent; in polymorphonuclears from 73 to 87 per cent. Chemical examination of the blood revealed a urea nitrogen of only 10.3 mg., creatinine 1.22 mg., and sugar 87.7 mg. per hundred cubic centimeters. The blood Wassermann reaction was negative.

On cystoscopy, May 8, about 1½ ounces of purulent, milky-looking, foul urine was recovered from the bladder. On inspection the sphincter was congested; the "bas-fond" showed large

Fig. 2.—The opaque fluid instilled into the right renal pelvis has traversed a considerable portion of the small intestine.

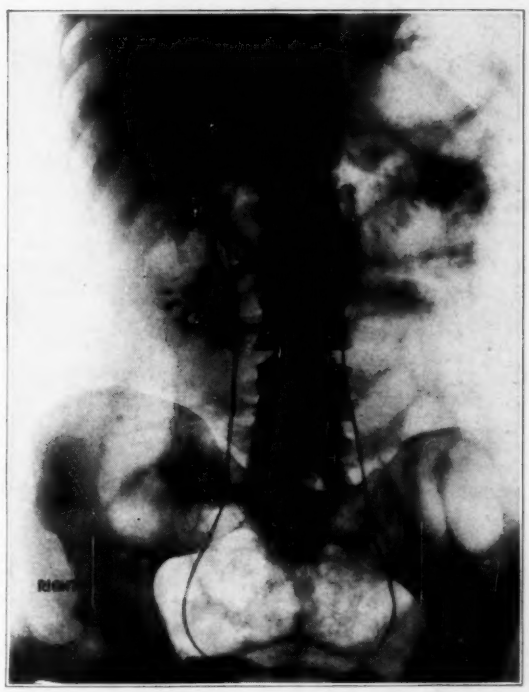

Fig. 3.—Fistulous communication through which the dye and the shadowgraph catheter have entered the duodenum.

patches of mucus adhering to the mucosa, which was considerably injected. Both ureteral ostia were visualized in their normal location and both catheters were advanced easily for 28 cm. The urinary drip was so slow that after forty-five minutes only about 3 cc. was obtained from either side, that from the right being milky and foul. The patient seemed to be dehydrated on account of attacks of vomiting.

Figure 2, taken after the instillation of 12.5 per cent solution of sodium iodide in both renal pelves, shows the opaque fluid to have traversed a considerable portion of the small intestine. Another ureteral catheterization, on May 12, was performed for the purpose of obtaining more definite information regarding the function of the left kidney, and it is worthy of mention here that the patient seemed to feel much relief for a day or two after each cystoscopy. The drip from the left renal pelvis at this time was much more satisfactory, but none came from the right, though 5 cc. of a creamy looking fluid was obtained on suction.

Phenolsulphonphthalein, 1 cc. intravenously, appeared in three and one-half minutes from the left side only, and the specimen collected for the next ten minutes showed a 12 per cent color concentration.

Laboratory Report, May 12

	Right	Left
Pus:	Heavy sediment	5 leukocytes per high power field
Urea:	Sufficient specimen	2.64 Gm. per thousand cubic centimeters
Tubercle bacilli:	Smear negative	Smear negative
Culture:	Gram-positive cocci Large and small gram-negative bacilli Occasional gram-positive bacillus Nonhemolytic streptococci	No growth in 48 hours

May 19, through a shadowgraph catheter advanced high up into the right ureter, 1 ounce (30 cc.) of 25 per cent sodium iodide was injected into the renal pelvis and exposures were taken at fifteen minute intervals. While the last portion of the dye was being instilled rather rapidly, the patient experienced a salty taste in the mouth, accompanied by nausea and a gush of projectile vomiting, but no pain.

Figure 3 demonstrates most accurately the point of union between the two structures, the shadowgraph catheter having entered the lumen of the intestine through the renal pelvis.

Fig. 4.—Pyelographic study of the right kidney the day before discharge from the hospital.

At the completion of the last exposure, 5 cc. of indigo carmine solution was injected through the catheter, but it evidently underwent decomposition, the result of the enema the following morning showing only a "coffee-brown fluid containing the same color stool." A gastro-intestinal series also was done, but the results were only prolapse of the transverse colon and periduodenal adhesions. Operation was performed, May 26, by the transperitoneal route. A difficult and painstaking dissection demonstrated a perfectly fitting anastomosis, about one-half inch in diameter, the descending portion of the duodenum being united with the pelvis of the right kidney. After the repair of the intestine was completed it was thought advisable to remove what appeared to be a hopelessly hardened and enlarged kidney, but in the manipulation of freeing it from the peritoneal adhesions a large abscess broke open from its posterior surface and the field of operation was literally bathed in thick, greenish pus. Drainage was quickly established anteriorly and posteriorly, and the abdomen was closed in layers. Convalescence was very stormy and in the course of the next five weeks intravenous therapy had to be constantly administered and often supplemented by blood transfusions. July 19, the day before discharge from the hospital, the pyelogram (fig. 4) to check up the condition of the right kidney revealed a dilatation of the pelvis with blunted and misshapen calices. Phenolsulphonphthalein appeared in four and one-half minutes on this side but the color concentration was only 7 per cent in fifteen minutes.

Fig. 5.—The iodized poppy-seed oil injected into the sinus in the right flank has entered the abscess in the kidney.

Weekly inspection in the outpatient department was carried out because of slight but persistent drainage from a sinus of the posterior incision, which did not close until the latter part of February 1934. The general condition was then excellent; she weighed 135 pounds (61.2 Kg.). The patient felt well until June 20, at which time she experienced a sudden throbbing pain in the right flank, with tumefaction, chills and fever. A large abscess broke open spontaneously on the examining table and she was again admitted to the hospital.

Catheterization of the right ureter at this time showed only a faint trace of phenolsulphonphthalein after twenty-five minutes; roentgen examination revealed a very small kidney outline, and an intrarenal abscess was demonstrated by injecting iodized poppy-seed oil through the sinus in the flank (fig. 5).

Nephrectomy yielded a kidney the size of a small lemon, the actual weight being only 40 Gm., although at the previous operation it had appeared to be close to 40 ounces (1,134 Gm.) There was no appreciable pulsation of the vascular pedicle; there was only a vestige of the fatty capsule, and the few adhesions encountered were not at all troublesome. The pathologic diagnosis was tuberculosis of the kidney.

COMMENT

A thought in retrospection of this unusual case comes, of necessity, to every one's mind. Was a perforating duodenal

ulcer the initial factor in the modus operandi or was there a preexisting kidney lesion which, by way of a perirenal abscess, became attached to and finally ulcerated into the duodenum? In proportion, renal lesions certainly occur with overwhelmingly greater frequency. In 17,652 postmortem examinations at Guy's Hospital there were only seventy cases in which an ulcer of the duodenum, either open or healed, was discovered.[5] Yet, all the authors who refer to this condition agree to the two-way possibility and the majority state that the initial focus of infection is usually of the tuberculous type.

I believe that the ulcerative process originated in the duodenum, because the gastro-intestinal complaint preceded the urinary disturbance by several months, because of the repeated failure to encounter any obstruction of the right renal tract, and because of lack of evidence of tuberculous changes on pyelography.

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IDIOSYNCRASY TO HEXYLRESORCINOL

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The unusual severity of the manifestation of an acquired sensitivity to hexylresorcinol warrants the report of this case. Idiosyncrasy to hexylresorcinol has been described by Templeton and Lunsford [1] and by Cummer.[2]

Fig. 1.—Second degree burn caused by contact with hexylresorcinol.

REPORT OF CASE

History.—An American woman, aged 57, a housewife, scratched the dorsum of her left hand on a jagged piece of glass protruding from the frame of a broken window. A wet dressing of hexylresorcinol solution was applied for approximately thirty minutes, and the injury was dismissed as trivial. Twenty-four hours later the area moistened by the dressing began to itch and burn, and the skin about the scratch became red and swollen. Vesicles formed in the center of the lesion during the following day. As the lesion spread, the vesicles coalesced to form large blebs. Itching and burning sensations were supplanted by a dull throbbing ache. Three days following the original injury the patient sought medical advice at the outdoor department of the Peter Bent Brigham Hospital.

The family history showed that there was asthma in the mother, brother and nephew.

The patient had had five pregnancies, one complicated by phlegmasia alba dolens. Two daughters have hay fever, one having rheumatic heart disease as well. In another hives develops following the ingestion of lobster or strawberries, a phenomenon first noted during an attack of chorea.

Strawberries and tomatoes cause hives in the patient. Recurrent ulcers of the left leg were treated with numerous salves for twelve years. During the period from May to October 1931, moist dressings of hexylresorcinol solution were applied to the ulcers in conjunction with pressure bandages. The ulcers healed temporarily. Following this the patient could recall no contact with hexylresorcinol until the present illness.

Fig. 2.—Skin test twenty-four hours after application of hexylresorcinol to scarified area.

Examination.—The patient was obese and well preserved and had a ruddy complexion. The general physical examination was unremarkable except for a blood pressure of 180 systolic, 130 diastolic, with slight cardiac enlargement and the usual evidence of postphlebitic ulcer over the lower left leg.

A vesicular and bullous eruption surrounded by an elevated, erythematous, sharply demarcated border covered the dorsum of the left hand and wrist. The purplish red bullae contained a serosanguineous viscid fluid. There was no increased warmth, and tenderness could not be elicited. Motions of the hand and arm were painless. No lymphadenopathy was noted. The extent and characteristics of the lesion are illustrated in figure 1.

Course.—On the first visit to the clinic a small area over the solar aspect of the right arm was scarified lightly and fresh hexylresorcinol solution was poured over the area. An erythematous wheal appeared within a period of one hour and the area began to "sting." Intense burning and itching preceded vesicle formation. In twenty-four hours the lesion appeared as illustrated in figure 2.

Treatment consisted of bland washes during the first forty-eight hours. Then, because of the extension of the original lesion and the development of headache, lassitude, feverishness (temperature 99.5 F.) and thirst, the areas were thoroughly tanned with tannic acid and ointment (5 per cent). The systemic reaction ceased promptly. When the eschar was removed after ten days, complete healing had occurred.

5. Perry and Shaw: Guy's Hosp. Rep. **42**: 197, 1893.

From the Surgical Clinic of the Peter Bent Brigham Hospital.

1. Templeton, H. J., and Lunsford, C. J.: Cheilitis and Stomatitis from S. T. 37 Toothpaste, Arch. Dermat. & Syph. **25**: 439 (March) 1932.

2. Cummer, C. L.: Dermatitis from the Use of Hexylresorcinol Solution S. T. 37; Acquired Sensitivity, J. A. M. A. **100**: 884 (March 25) 1933.

Laboratory studies showed that the urine was normal and the Wassermann reaction negative; culture from blebs taken on the third day yielded Staphylococcus aureus.

On a follow-up examination eight months later the skin of the hand appeared normal. A second skin test was applied, resulting in erythema and vesicle formation in twelve hours.

SUMMARY

Cutaneous sensitivity to hexylresorcinol was acquired by external application of the drug over a period of five months. Twenty-six months later, severe dermatitis resulted from a single brief contact with the drug.

URETERAL STRICTURE AND HYDRONEPHROSIS AS LATE SEQUEL OF KIDNEY INJURY

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In cases of kidney injury in which recovery has occurred after nonoperative treatment, one is apt to overlook the late effects of such an injury to the kidney and the corresponding ureter. Only a few articles have thus far appeared which show the value of intravenous (excretory) and of ascending (retrograde) pyelography in the determination of how much damage has been done in these cases.

The importance of the subject from the standpoint of industrial and ordinary accident insurance cannot be overestimated. In all cases thus far reported, the interval between the time of injury and that of the examination has been a relatively short one; hence the report of a case in which the accident occurred twenty years before the reappearance of symptoms referable to the injured kidney may be of interest.

A man, aged 39, while traveling in Europe had a sudden, symptomless hematuria. When I first saw him, at the American Hospital, Paris, he stated that the hematuria had first been noticed three days before. The onset had been sudden, without any prodromal symptoms. The urine had remained uniformly bloody during these three days, without any pain or other symptoms that could aid in localizing the source of the hematuria. He stated that he had fallen on a slippery sidewalk twenty years before and immediately noticed pain over the left kidney region. The first urine passed after the accident contained considerable blood. Both the pain and the hematuria continued for two weeks but gradually decreased until the urine, on macroscopic examination, became clear. Since that time, microscopic examination of the urine has revealed, at intervals, the presence of red blood cells. At the time of the accident, twenty years before, cystoscopy and ureteral catheterization showed that the source of the hematuria was the left kidney. The injury was treated conservatively, and the patient had no symptoms referable to the injured kidney until the sudden onset of the hematuria for which he came to the hospital twenty years later.

Fig. 1.—Results of intravenous pyelography at end of fifteen minutes. Note the absence of any excretion on the left (injured) side and the presence of shadows of the normal pelvis and calices on the right side.

Examination of the urinary tract, Dec. 1, 1934, revealed the following: Urine passed before the introduction of the cystoscope contained a large amount of blood (grade 4) intimately mixed with the urine. Intravenous (excretory) pyelography revealed a normal renal pelvis and calices on the right, but a complete absence of any shadow on the left side (fig. 1) at the end of fifteen minutes. Plain radiography failed to show any abnormal shadows due to calculi. On cystoscopy, the bladder urine was found to contain a large amount of blood. Aside from marked hyperemia of the walls and the trigon, the bladder examination failed to reveal anything abnormal. The left ureteral orifice was edematous, but the right one was normal in appearance. Urine obtained by ureteral catheterization from the right kidney was normal on examination, and indigo carmine, given intravenously, appeared in four minutes on the right side, showing an apparently good function of the corresponding kidney. The urine obtained by ureteral catheterization from the left side was as bloody as that in the bladder. Ascending (retrograde) ureteropyelography on the left side showed a moderately advanced degree of hydronephrosis, in the shape of a large, obliquely placed shadow (fig. 2) in the left kidney region. Where this shadow passed over into that of the ureter there was a sudden interruption or filling defect about 1 cm. in length, in which one could see only a faint shadow, indicating a narrowed passage between the renal pelvis and the ureter. The latter from this level down to the bladder showed a wider shadow than normal, but this was interpreted as being due to the fact that the opaque medium employed for the ascending pyelography had encountered a resistance at the upper end of the ureter, with a resultant artificial widening of the ureteral shadow.

Fig. 2.—Results of ascending (retrograde) ureteropyelography on the left side. Note the large diffuse shadow in the kidney region indicating the hydronephrosis. Between this large shadow and the ureter there is an almost complete filling defect, indicating the seat of traumatic stricture of the ureter.

My interpretation of these changes is that at the time of the injury, twenty years before, the ureter had been almost completely torn across, at its junction with the renal pelvis. The result of this ureteral injury had been the formation of a stricture, sufficiently patent, however, to allow some of the opaque medium, injected from below, to pass through and fill the dilated renal pelvis. The patient was kept under observation for five days. The severe hematuria continued during this period and was at times accompanied by the passage of clots. Nephrectomy was advised on account of the constantly increasing anemia, but the patient refused any operative intervention and returned to New York.

The case is reported because it shows in the first place that an injury of the ureter may be followed by as serious a sequel as injury of the kidney itself, and, secondly, that it may serve

to direct attention to the necessity of keeping a patient who has sustained a severe reno-ureteral injury under surveillance for a much longer period than one has been accustomed to deem necessary. Bleeding from a hydronephrosis is not at all uncommon, and this best explains the severity and persistence of the bleeding. In all probability, the gradual decrease in the lumen of the ureter, at its point of origin from the renal pelvis, explains the slow development of the hydronephrosis and the consequent absence of symptoms during the interval of twenty years from the time of injury.

The case is important from the standpoint of indemnity, both industrial and ordinary (nonindustrial).

About two months after examination of the patient a letter was received from Dr. Paul W. Aschner of New York, stating that he had removed the left kidney. The specimen showed an S-trap ureteropelvic obstruction and an enormous hydronephrosis. Dr. Aschner was of the opinion that the obstruction was of congenital origin and that it had been present at the time of the original injury twenty years before and that it had predisposed the patient to the hemorrhage following the injury.

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Special Articles

GLANDULAR PHYSIOLOGY AND THERAPY

CORPUS LUTEUM THERAPY

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NOTE.—*These articles and the articles in the previous issues of* THE JOURNAL *are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed, the series will be published in book form.*—ED.

The title of this article, "corpus luteum therapy," of course indicates scarcely more than a hope for the future; I am sadly aware that its perusal cannot immediately result in curative benefit to a single patient. Nevertheless it will be profitable to consider the subject as it stands today, from the mutual standpoint of the practitioner and the investigator. Such consideration will not only explain the physiologic basis on which practical applications are to be worked out but also help, it is hoped, to clear away the misconceptions and false hopes by reason of which in the past so many bottles and pill boxes have been filled with elegant but inert pharmaceuticals.

FUNCTION OF THE CORPUS LUTEUM

Speaking broadly, the endocrine function of the corpus luteum is now well understood; the gland is a part of the mechanism of pregnancy, and its general action is exerted on the uterus to put that organ into a proper state for the reception and nutriment of the embryo. When an ovum begins its journey through the fallopian tube, the follicle wherein it took origin gives place to the corpus luteum; and this organ thereupon begins to deliver into the blood stream a substance that has the property of causing extensive development of the uterine glands, so that the histologic structure of the endometrium is greatly altered.

By the time the fertilized ovum reaches the uterus, the endometrium is therefore already in a state of heightened secretory activity, by which presumably nutritive substances are provided for the embryo; moreover, it is in some way sensitized so that it responds to the presence of the embryo by forming the maternal part of the placenta and the decidua. Experiments on animals have amply shown that removal of the corpus luteum during the earlier part of pregnancy causes failure of implantation of the embryo, or, if the embryo is already implanted, it causes destruction of the pregnancy.

So far as is known at present, the corpus luteum has no useful action except in pregnancy, but in most mammals, including the human species, the gland is formed in every cycle, in anticipation (so to speak) of pregnancy, and therefore in each human cycle the corpus luteum normally acts for about two weeks, giving rise to the so-called premenstrual stages of the endometrium. Thus in the adult nonpregnant human female the corpus luteum is functioning about half the time, but in animals with less frequent cycles the proportion of corpus luteum function is much less; the nonpregnant bitch, for example, gets along in perfect health without corpora lutea for about ten months of the year. Obviously, therefore, the corpus luteum is not necessary for general well being.

PROGESTIN

The hormone of the corpus luteum, which gives the effects described, has been extracted from the ovaries of swine and has been named "progestin" (i. e., favoring gestation) by myself and my colleague Willard Allen. The name "corporin" has been applied by Hisaw and his collaborators to the same hormone as it occurs in their extracts. Investigations by Butenandt [1] and by Allen and Wintersteiner [2] reveal that progestin is a crystalline hydrocarbon of formula $C_{21}H_{30}O_2$, melting at 128 C., having both oxygen molecules in ketone linkage. Beyond this point its chemistry is at the time of writing unknown. A recent statement by Slotta, Ruschig and Fels,[3] that besides such a substance a second compound is necessary to produce the full effect, is not in agreement with the results of Allen and Wintersteiner.

Progestin is administered subcutaneously, usually in solution in a vegetable oil; it cannot be given by mouth, because either it is not absorbed from the gastrointestinal tract or it is inactivated by the processes of digestion.

In castrated rabbits, progestin readily produces pregnancy changes in the uterus; in rabbits castrated during early pregnancy, it will protect the embryos against the loss of their mother's corpora lutea and will maintain the pregnancy to full term. In guinea-pigs it sensitizes the uterus to produce the maternal placenta (Loeb's deciduoma).

Hisaw, Meyer and Fevold,[4] Smith and Engle,[5] and I have severally succeeded in producing in monkeys the

1. Butenandt, A.: Neuere Ergebnisse auf dem Gebiet der Sexualhormone, Wien. klin. Wchnschr. **47**: 934 (July 27) 1934.
2. Allen, W. M., and Wintersteiner, O.: Crystalline Progestin. Science **80**: 190 (Aug. 24) 1934.
3. Slotta, K. H.; Ruschig, H., and Fels, E.: Reindarstellung der Hormone aus dem Corpus luteum, Ber. d. Deutsch. chem. Gesellsch. **67**: 1270 (July) 1934.
4. Hisaw, F. L.; Meyer, R. K., and Fevold, H. L.: Production of a Premenstrual Endometrium in Castrated Monkeys by Ovarian Hormones, Proc. Soc. Exper. Biol. & Med. **27**: 400 (Feb.) 1930.
5. Smith, P. E., and Engle, E. T.: Prevention of Experimental Uterine Bleeding in Macacus Monkey by Corpus Luteum Extract (Progestin), Proc. Soc. Exper. Biol. & Med. **29**: 1225 (June) 1932.

premenstrual endometrium with progestin, and Kaufmann [6] and a number of other European gynecologists have produced premenstrual endometrium in castrated women by administering large doses of estrogenic substance to bring the uterus back to its normal interval stage, and then progestin to effect the premenstrual changes.

The standard assay of progestin is performed by administering it for five days to an adult rabbit that has been mated and then castrated. A rabbit unit (Corner and Allen [7]) is the minimum quantity which, divided into five equal daily doses, produces on the sixth day a state of the uterus equal to that of the eighth day of a normal pregnancy. This unit is generally used in the American laboratories, but in Germany a number of workers are using the Clauberg unit,[8] which is measured in the same way except that immature rabbits of 600 Gm. weight are used, being primed with ten doses of estrogenic substance preceding the five days course of progestin. This Clauberg unit is apparently somewhat smaller than the American unit.

Action on Uterine Muscle. — Besides the progestational effect on the uterine mucosa, extracts containing progestin also produce certain effects on the uterine muscle. Thus Reynolds [9] has injected such extracts into rabbits in which he can study the spontaneous uterine contractions through a uterine fistula and finds that the drug renders the uterus temporarily quiescent. Knaus,[10] who uses the excised rabbit's uterus in vitro, finds that corpus luteum extracts inhibit the normal response of the uterine muscle to the oxytocic principle of posterior pituitary. It is not yet certain whether such inhibition of uterine smooth muscle is due to progestin itself or to another hormone; the weight of published evidence favors the latter, but experiments now in progress in my laboratory suggest reservation of judgment on this point. These reactions are not all the same in various animal species that have been tried, but there is evidence [10] that the nonpregnant human uterus fails to respond to oxytocic principle of posterior pituitary during the latter half of the interval when the corpus luteum is present.

RELAXIN

Hisaw [11] has described another substance found in extracts of the corpus luteum, called relaxin, which is totally distinct from progestin and which has the property of relaxing the symphysis pubis in the guinea-pig in a manner similar to the normal relaxation which occurs in that species during pregnancy. The existence of relaxin as a specific hormone has not yet been independently confirmed, but the details of the question need not detain us here, since no clinical considerations are as yet involved.

AVAILABILITY OF PROGESTIN

Returning to progestin, it must be said first that the expense and difficulty of preparation will greatly retard clinical trial, which will probably have to wait until the chemists discover how to synthesize the drug. In the United States, progestin has scarcely passed beyond the laboratories in which it was discovered. The experimental divisions of two or three of the large drug houses have prepared small quantities of the crude extract for trial and are experimenting with commercial purification, but as yet no preparation for clinical use has been put on the market. Several European manufacturers are, however, actually advertising the drug under various names; i. e., Proluton (Schering and Kahlbaum), Luteogan (Henning), Lutex (Leo).[12] These preparations are assayed in rabbit units and certainly contain the hormone, as indicated by the fact that they were successful in the tests on human patients already mentioned.

CLINICAL POSSIBILITIES

Here then is a definite hormone, about to be handed to the medical profession to take the place of the meaningless corpus luteum preparations of the past. It has the property of bringing about premenstrual changes and the uterine conditions of early pregnancy. What is to be done with it? A few clues from the experimental side may be useful to the clinical investigators who must answer the question:

1. If there are, among the cases of sterility and of habitual abortion, any which are specifically due to uterine disturbances caused by deficiency of the corpus luteum, progestin will help them, for it maintains pregnancy in castrated pregnant animals. Perhaps the drug will be useful in classifying such cases by therapeutic test. There is a report in the German literature of two cases of threatened abortion treated with supposedly favorable results.[13]

If, as many people still think, the corpus luteum has the property of inhibiting ovulation, it would be distinctly contraindicated in sterility of ovarian origin. The animal experiments on this point are, however, not yet decisive.

2. With regard to the treatment of disorders of menstruation, the trouble is that there is simply not enough information about the part played by the corpus luteum in the menstrual cycle. At present it is difficult to believe that the corpus is primarily connected with menstrual rhythm. A discussion of the question will be found in a recent paper.[14] If progestin has any effect, it is probably as a suppresser of menstruation. Any use of the hormone to affect the cycle will necessarily be in the nature of an experiment.

3. The German gynecologists who have had small amounts of progestin-containing preparations for clinical use have been interested in their action on metror-

6. Kaufmann, C.: Echte Menstruation bei einer kastrierten Frau durch Zufuhr von Ovarialhormonen, Zentralbl. f. Gynäk. **57:** 42 (Jan. 7) 1933.

7. Corner, G. W., and Allen, W. M.: Physiology of the Corpus Luteum: II. Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum, Am. J. Physiol. **88:** 326 (March) 1929.

8. Clauberg, Carl: Zur Physiologie und Pathologie der Sexualhormone, im besonderen des Hormons des Corpus luteum: I. Mitteilung: Der biologische Test für das Luteohormon (das spezifische Hormon des Corpus luteum) am infantilen Kaninchen, Zentralbl. f. Gynäk. **54:** 2757 (Nov. 1) 1930.

9. Reynolds, S. R. M., and Allen, W. M.: The Effect of Progestin-Containing Extracts of Corpora Lutea on Uterine Motility in the Unanesthetized Rabbit, with Observations on Pseudopregnancy, Am. J. Physiol. **102:** 39 (Oct.) 1932.

10. Knaus, Hermann: Zur Technik der Registration von Bewegungen der menschlichen Gebärmutter, Zentralbl. f. Gynäk. **57:** 2658 (Nov. 11) 1933.

11. Hisaw, F. L.: The Corpus Luteum Hormone: I. Experimental Relaxation of the Pelvic Ligaments of the Guinea-Pig, Physiol. Zool. **2:** 59 (Jan.) 1929.

12. These products appear not to be readily available on the American market. They have not been considered by the Council.—ED.

13. Knab, F.: Beiträge zur Behandlung ovariell bedingter Blutungen mit dem Hormon des Corpus luteum, Zentralbl. f. Gynäk. **57:** 987 (April 29) 1933.

14. Corner, G. W.: The Nature of the Menstrual Cycle, Medicine **12:** 61 (Feb.) 1933.

rhagia and menorrhagia. Kaufmann and Bickel[15] report partially favorable results, including clinical cures of glandular hypoplasia with bleeding, and Knab [13] has had good results in two cases of "juvenile uterine hemorrhage" and six cases of "ovarian bleeding without pathologic observations." Presumably the theory underlying this work is that an agent which is able to cause growth changes in the endometrium may thereby improve the condition of a deteriorated bleeding mucosa; or perhaps the favorable result in some of these cases, if genuine, may come from the known power of progestin to antagonize estrogenic substance in some of its actions. Progestin might be useful, therefore, in menorrhagia when (if ever) it is due to overaction of estrogenic substance. In these matters it will be best for the clinicians to go ahead with cautious trials, for the time being, leaving the explanation to be worked out in the laboratory.

Attempted Indirect Therapy.—In view of the present difficulty of getting authentic corpus luteum extracts for clinical trial, it has been proposed [16] that corpus luteum therapy be achieved by treating the patient with the so-called anterior pituitary-like luteinizing factor of the urine of pregnancy. To this end preparations known on the market as "follutein" and "antuitrin-S," made from human pregnancy urine, have been used. These extracts are highly potent in producing corpora lutea in rats, and it was hoped that they would also luteinize the human ovary and thus give the patient a self-made supply of corpus luteum hormone; but evidence is totally lacking that the human ovary can be so luteinized. Monkey ovaries certainly cannot be so affected. If favorable therapeutic results follow the use of pregnancy urine extracts, the relief of symptoms can therefore scarcely be considered to be due to the corpus luteum.

EMPIRICAL PREPARATIONS

Corpus luteum preparations of current American manufacture all date from the time before the physiology of the corpus luteum was well known, and they were all put into use on the basis of a vague hope that an organ obviously related to pregnancy and the menstrual cycle might somehow do good if given to patients with various reproductive disorders. None of them are assayed for progestin, and so far as is known none of them contain it in effective amounts, because the methods of preparation or of administration are mostly such as to remove or destroy the hormone; if any of them contain any useful substance it is something unknown to science. Their use is therefore quite empirical, and it may safely be predicted that they will become obsolete as fast as genuine assayed hormone-containing products become available.

In brief, the American practitioner now has at his disposal no corpus luteum therapy that has passed the test of experiment, but current work with progestin promises to give in the future a corpus luteum hormone with which the possibilities of therapy may be explored.

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15. Kaufmann, C., and Bickel, L.: Ueber die Behandlung genitaler Blutungen mit Corpus luteum-Hormon, Zentralbl. f. Gynäk. **56:** 1329 (May 28) 1932.

16. Novak, Emil, and Hurd, G. B.: Use of Anterior Pituitary Luteinizing Substance in the Treatment of Functional Uterine Bleeding, Am. J. Obst. & Gynec. **22:** 501 (Oct.) 1931.

MENSTRUATION

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Recently the process of menstruation has been observed microscopically in the living animal by Markee.[1] This was accomplished by transplanting small pieces of endometrium into the anterior chamber of the eye, where they became vascularized and could be observed frequently for considerable periods. A graphic description of the onset and course of menstruation helps to vivify impressions of this hemorrhagic process as drawn from previous descriptions of histologic specimens.[2]

OBSERVATIONS ON THE MENSTRUATING ENDOMETRIUM

The main features may be summarized as follows: Endometrial transplants were observed in the eyes of six monkeys. Vasoconstriction began from six to twelve hours before the onset of menstruation and persisted throughout the first day. Menstruation began in the endometrium implanted in the eye, sometimes three hours before blood from the uterine hemorrhage entered the vagina. When several transplants were made into the same eye, the onset of menstruation was not simultaneous in all. Subepithelial hematomas formed and small papillae appeared on the epithelial surface. A papilla ruptured and hemorrhage continued for from twenty-five to seventy minutes. New ones formed and ruptured. Only a small part of a transplant bled at one time. (This explains the variability in different regions of the same endometrium recently stressed by Bartelmez.[2]) No desquamation of epithelium occurred during the first few hours and only small bits during the first day. There was much variation in the amount of tissue desquamated. Reepithelization occurred from outgrowths of free extremities of glands. This description further justifies the characterization of menstruation as a unique physiologic hemorrhage.

There are several operative procedures that will precipitate menstruation in normal adult primates: ovariectomy,[3] damage to large follicles,[4] excision of corpora lutea,[5] and section of the nervous connections to the ovaries either peripherally[6] or in the spinal cord.[7] Section of the spinal cord precipitates menstruation but does not terminate the menstrual function, for regular cycles are resumed later.[7] Since the menstrual hemorrhage is the most obvious feature, it has been greatly emphasized, and the whole cycle of endometrial changes has been dated from the onset of bleeding. Physiologically, however, menstruation is the last event, not the first, in the menstrual cycle.[8]

From the Department of Anatomy, Yale University School of Medicine.
This paper logically follows a discussion of the "Physiology of Estrogenic Principles" earlier in this series.

1. Markee, J. E.: Menstruation in Ocular Endometrial Implants, Anat. Rec. **55:** 66 (March 25) 1933.

2. Bartelmez, G. W.: Histological Studies of the Menstruating Mucous Membrane of the Human Uterus, Contributions to Embryology, Number 142, Carnegie Institution of Washington, Pub. 435, 1933.

3. This has been observed repeatedly in women. It has also been noted experimentally in the monkey (footnote 4).

4. Allen, Edgar: The Menstrual Cycle of the Monkey Macacus rhesus: Observations on Normal Animals, the Effects of Removal of the Ovaries and the Effects of Injections of Ovarian and Placental Extracts into the Spayed Animals, Contributions to Embryology, Number 98, Carnegie Institution of Washington, Pub. 380, **19:** 1 (Aug.) 1927.

5. Pratt, J. P.: The Corpus Luteum in Relation to Menstruation and Pregnancy, Endocrinology **11:** 195 (May-June) 1927.

6. Zuckerman, S.: The Preganglionic Pathways of the Ovarian Nerves of the Rhesus Monkey, Anat. Rec. **58:** (supp.) 43 (March 25) 1934.

7. van Wagenen, Gertrude: A Study of Induced Menstruation in the Monkey, Anat. Rec. **52:** 40 (Feb. 25, supp.) 1932.

8. (*a*) Corner, G. W.: The Nature of the Menstrual Cycle, Medicine **12:** 61 (Feb.) 1933 (Harvey Lecture). (*b*) Allen, Edgar: Sex and Internal Secretions, Baltimore, Williams & Wilkins Company, 1932.

MENSTRUATION INDUCED AFTER OVARIECTOMY BY ESTROGENIC SUBSTANCE

The essential features of the endocrine mechanism controlling the menstrual cycle have been worked out experimentally,[9] and the analogy to the estrous cycle of lower mammals has been clarified.[10] Recently, Goodman and Wislocki[10d] have added the spider monkey to the number of primates known to menstruate. They discovered by microscopic examination of material obtained from the vagina by the lavage method that a slight hemorrhage appears periodically which is seldom apparent externally. Although slight in amount, this hemorrhage may be an intermediate stage in the development of typical menstrual function. In women[11] and in monkeys,[12] after menstruation nas disappeared following ovariectomy, it can again be induced experimentally by treatment with estrogenic substance. The important reaction here, as mentioned in the section of this series concerned with the estrous cycle of lower mammals,[13] is stimulation by the injected hormone of a general growth reaction in the accessory genital organs: vagina, uterus, uterine tubes and mammary glands. Extremely rapid hyperplasia in the endometrium is indicated by the extraordinary number of mitotic figures. After this growth has been induced, either decrease in the dosage (Hisaw) or cessation of injections of the estrogenic substance is followed by menstrual hemorrhage.[14] Even when this hormone therapy is continued at a uniform level by daily injections, menstruation may appear.[11] Abnormal endometrial conditions have been produced by long continued injections.[15] Many details as to optimum dosage, absorption of injected hormone and similar variables need further clarification. It is clear, however, that this hormone must act on the uterus before the onset of menstruation. The growth phase is therefore the first stage of the menstrual cycle, and menstruation the last stage.

CORPUS LUTEUM HORMONE NOT ESSENTIAL FOR MENSTRUAL HEMORRHAGE

That the ovarian follicular hormone is the necessary ovarian endocrine factor has been shown by the definitely established fact of menstruation without ovulation, and therefore without corpus luteum formation, as a frequent occurrence in normal monkeys,[16] and as an occasional occurrence in women,[8] and also by the induction of menstruation in both monkeys and women by therapy with theelin alone.[17] That the endocrine function of the corpus luteum is involved, when ovulation does occur, in either a supplementary or a regulatory capacity, is indicated by postponement of the experimental menstrual periods that should follow theelin therapy by superimposing progestin (or theelin) treatment.[18] Apparently the actual process of menstrual hemorrhage with or without a previous ovulation is fundamentally the same. The premenstrual or progestational transformation of the endometrium under the action of the corpus luteum hormone, though occurring normally in a fertile cycle, is not a necessary forerunner of the events leading to the actual hemorrhage.

VASCULAR AND GROWTH EFFECTS

As described in the section on estrogenic principles, vasodilatation of the vessels of the rabbit's endometrium has been included as one of the principal reactions following injections of theelin.[19] Therefore, operative procedures that interfere with secretion of the estrogenic factor in the normal animal, or cessation of theelin treatment or decreased dosage of either theelin or progestin during replacement therapy in ovariectomized animals, might well explain the vasoconstriction observed immediately preceding onset of the flow.

It should be further stressed, however, that, after destruction of the outer layers of the endometrium, new growth of vessels is required to sustain the rapid repair and growth of the endometrium for the next cycle. The growth of these new capillaries and the changes in the arterioles, with distribution of longitudinal muscles in their walls as in erectile tissue, has been stressed in relation to the control of menstrual hemorrhage.[2] This further emphasizes the importance of the preliminary growth phase, which precedes menstruation.

THERAPY WITH ESTROGENIC SUBSTANCE IN WOMEN

Probably the most successful therapy in women with theelin alone aimed at alleviation of operative menopause symptoms following complete ovariectomy is that reported by Werner and Collier.[11] They demonstrated considerable growth in the genital organs of ovariectomized women induced by daily injections of a crystalline preparation of theelin. Menstruation appeared both during the course of injections and after the cessation of treatment. For controls in Werner and Collier's experiments, biopsy specimens were taken before injections were begun, which showed the atrophic endometrium of the typical castrate. Other biopsies taken periodically during the course of injections showed marked hyperplasia. The degree of development induced in the endometrium was equivalent to that of the normal intermenstrual stage—there was no progestational transformation. There was a definite increase in vascularity and size of the cervix and a noticeable growth of the mammary glands. The experimental menstrual hemorrhage was qualitatively indistinguishable from the menstrual discharge of normal women. There was a distinct alleviation of the usual subjective menopause symptoms. In some instances there was a decided increase in libido.

9. Footnote 4. Hisaw, F. L.: Physiology of the Corpus Luteum. Chapter XI, Sex and Internal Secretions (Edgar Allen, Editor), Baltimore, Williams & Wilkins Company, 1932.

10. (*a*) Hartman, C. G.: The Homology of Menstruation, J. A. M. A. **92**: 1992 (June 15) 1929; (*b*) Studies in the Reproduction of the Monkey, Macacus (Pithecus) Rhesus, with Special Reference to Menstruation and Pregnancy, Contributions to Embryology, Number 134, Carnegie Institution of Washington, Pub. 433, 1932. (*c*) Westman, A.: Studien über den Sexualzyklus bei Makakus-Rhesus-Affen, nebst einigen Bernerkungen über den menstruellen Blutungsmechanismus, Acta Obst. et Gynec. Scand. **12**: 282, 1932. (*d*) Goodman, L., and Wislocki, G. B.: Cyclical Uterine Bleeding in a New World Monkey (Ateles Geoffroyi), Anat. Rec. **61**: 379, 1935. (*e*) Zuckerman, S.: The Comparative Physiology of the Menstrual Cycle, Brit. M. J. **21**: 1093 (Dec. 17) 1932.

11. Werner, A. A., and Collier, W. D.: The Effect of Theelin Injections on the Castrated Woman, J. A. M. A. **100**: 633 (March 4) 1933.

12. Footnote 4. Saiki, Seuchi: Relation of the Hypophysis and Ovaries to Experimentally Induced Uterine Bleeding in Monkeys, Am. J. Physiol. **100**: 8 (March) 1932.

13. Allen, Edgar: Physiology of Estrogenic Principles, J. A. M. A. **104**: 1498 (April 27) 1935.

14. Allen, Edgar: Further Experiments with an Ovarian Hormone in the Ovariectomized Adult Monkey, Macacus Rhesus, Especially the Degenerative Phase of the Experimental Menstrual Cycle, Am. J. Anat. **42**: 467 (Nov.) 1928.

15. Burch, J. C.; Williams, W. L., and Cunningham, R. S.: The Etiology of Endometrial Hyperplasia, Surg., Gynec. & Obst. **53**: 338 (Sept.) 1931.

16. Hartman.[10b] Allen.[4] Corner, G. W.: Ovulation and Menstruation in Macacus Rhesus, Contributions to Embryology, Number 75, Carnegie Institution of Washington, Pub. 332, **15**: 74, 1923; The Relation Between Menstruation and Ovulation in the Monkey: Its Possible Significance for Man, J. A. M. A. **89**: 1838 (Nov. 26) 1927.

17. Allen.[4] Werner and Collier.[11]

18. Smith, P. E., and Engle, E. T.: Prevention of Experimental Uterine Bleeding in Macacus Rhesus Monkey by Corpus Luteum Extract (Progestin), Proc. Soc. Exper. Biol. & Med. **29**: 1225 (June) 1932.

19. Markee, J. E.: Rhythmic Vascular Uterine Changes, Am. J. Physiol. **100**: 32 (March) 1932.

In later experiments, Werner and Collier [20] reduced the dosage somewhat but still obtained results that confirmed the conclusions of their first report. They suggest about 2,800 rat units of theelin as the minimum clinical dosage over an interval of from two to four weeks.

Among the many other reports of clinical trials of estrogenic preparations, the recent paper by Papanicolaou is of interest. Although the wave of growth in the vaginal epithelium is not so clear-cut in primates as in rodents, careful examination shows a cyclic fluctuation in both growth and desquamation (Corner,[16] Allen,[4] Hartman,[10b] Papanicolaou [21]). By this method of examination, effects of injected estrogenic preparations may be followed in clinical tests.

Another extremely good indicator of follicular hormone concentration in experiments with monkeys is the reddening and swelling of the "sexual skin." In the normal animal these phenomena are more intense during the intermenstruum.[22] As the time for menstruation approaches, the color becomes paler and swelling decreases.[4] The reddening and swelling can be induced after ovariectomy by injections of estrogenic substance.[4]

In my opinion the experiments of Werner and Collier are of great significance because they extend a demonstration of the essential mechanism of menstruation to women. However, since absence of menstruation is compatible with good health, there seems little reason for attempting to reestablish menstruation as a routine therapeutic procedure after complete ovariectomy. The treatment at best can only be temporary, and the value (other than psychologic) of experimental menstrual periods in such patients is still problematic. It is good, however, to know that it can be done.

SYNERGISTIC ACTION OF FOLLICULAR AND CORPUS LUTEUM HORMONES

Work on purification and standardization of corpus luteum hormones has advanced rapidly.[23] Typical progestational endometrium has been produced in ovariectomized monkeys by successive theelin and progestin injections,[24] and similar well controlled experiments have been reported in ovariectomized women.[25] If progestin is to be used therapeutically, it is obvious from the experiments in monkeys and rabbits that it should be preceded by treatment with estrogenic substance unless there are indications that ovaries in situ are providing this necessary preliminary growth stimulus. Furthermore, a proper balance between these hormones is essential, for estrogenic substance has been demonstrated in the human corpus luteum during the premenstrual stage of the menstrual cycle.[26] Much work will be required to determine the optimum clinical dosage. These two hormones are closely related in chemical structure. That they are secreted by the same cells in different phases of life (follicular and luteal) suggests the possibility that progestin may be formed by a change in the molecule of the estrogenic hormone.

DEPENDENCE OF OVARIAN ENDOCRINE FUNCTION ON ANTERIOR PITUITARY

It seems to be well established now that secretion of the ovarian hormones from both follicles and corpora lutea is dependent on the normal function of the anterior pituitary.[27] Treatment with estrogenic substance has not been effective in producing experimental menstrual periods in ovariectomized monkeys if they have also been hypophysectomized.[28] Furthermore, injections of estrogenic substance do not increase function of the ovary itself.[8b] If ovarian therapy succeeds in establishing growth of genital tissues followed by menstruation, only a temporary effect is to be expected.

Smith and Engle followed their demonstration of the anterior pituitary effects on the ovaries of the rat by convincing experiments in monkeys.[29] They induced intense follicular hormone reactions by anterior pituitary stimulation of the ovaries, then terminated the follicular phase by ovariectomy, and menstruation followed. Injections of theelin, however, following ovariectomy delayed the onset of the experimental menses. Engle [30] reported the interesting experiment of injecting anterior pituitary-like gonadotropic substance from pregnancy urine. He was able to induce experimental menstruation without changing the secondary sex characteristics of the "sexual skin." Hisaw,[31] with the use of pyridine extracts of anterior pituitary, stimulated follicular growth which resulted in reddening and swelling of the "sexual skin" followed by menstruation.

EXPERIMENTAL OVULATION OF MORE THAN THE USUAL NUMBER OF EGGS

Following the demonstration of the striking effect of the anterior pituitary upon the ovaries, especially Engle's production of superovulation in the mouse,[32] attempts were made to induce the monkey to ovulate more than one or two eggs at a time.[33] The earlier attempts resulted in cystic follicles without ovulation. Hisaw, Greep and Fevold finally succeeded in inducing a monkey to ovulate a "litter" of eight eggs by the proper balance of follicle-stimulating and luteinizing fractions of anterior pituitary extracts.[34] This work of

20. Werner, A. A., and Collier, W. D.: Production of Endometrial Growth in Castrated Women, J. A. M. A. **101:** 1466 (Nov. 4) 1933.

21. Papanicolaou, G. N., and Shorr, E.: Action of Ovarian Follicular Hormone in Ovarian Insufficiency in Women as Indicated by Vaginal Smears, Proc. Soc. Exper. Biol. & Med. **32:** 585, 1935. Papanicolaou, G. N.: The Sexual Cycle of the Human Female as Revealed by Vaginal Smears, Amer. J. Anat. **52:** 519, 1933.

22. Collings, M. R.: A Study of the Cutaneous Reddening and Swelling About the Genitalia of the Monkey Macacus Rhesus, Anat. Rec. **33:** 271, 1926.

23. Corner, G. W., and Allen, W. M.: Physiology of the Corpus Luteum: II. Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum, Am. J. Physiol. **88:** 326, 1929. Allen, W. M.: Physiology of the Corpus Luteum: VI. The Production of Progestational Proliferation of the Endometrium of the Immature Rabbit by Progestin (an Extract of the Corpus Luteum) After Preliminary Treatment with Oestrin, Am. J. Physiol. **92:** 612 (April) 1930; The Preparation of Purified Progestin, J. Biol. Chem. **98:** 591 (Nov.) 1932.

24. Hisaw, F. L.; Meyer, R. K., and Fevold, H. L.: Production of a Premenstrual Endometrium in Castrated Monkeys by Ovarian Hormones, Proc. Soc. Exper. Biol. & Med. **27:** 400 (Feb.) 1930.

25. Kaufmann, C.: Umwandlung der Uterusschleimhaut einer kastrierten Frau aus dem atrophischen Stadium in das der sekretorischen Funktion durch Ovarialhormone, Zentralbl. f. Gynäk. **56:** 2058 (Aug. 20) 1932.

26. Allen, Edgar; Pratt, J. P.; Newell, Q. U., and Bland, L. J.: Hormone Content of Human Ovarian Tissues, Am. J. Physiol. **92:** 127 (Feb.) 1930.

27. Smith, P. E., and Engle, E. T.: Experimental Evidence Regarding the Rôle of the Anterior Pituitary in the Development and Regulation of the Genital System, Am. J. Anat. **40:** 159 (Nov.) 1927. Smith, P. E.: The Effect on the Reproductive System of Ablation and Implantation of the Anterior Hypophysis, Chapter XV, Sex and Internal Secretions (Edgar Allen, Editor), Baltimore, Williams & Wilkins Company, 1932. Smith, P. E., and Engle, E. T.: The Rôle of the Anterior Pituitary in the Maintenance and Regulation of the Reproductive System, Chapter LXXVII, Obstetrics and Gynecology (A. H. Curtis, Editor), Philadelphia, W. B. Saunders Company, 1933.

28. Hartman, C. G.; Firor, W. M., and Geiling, E. M. K.: The Anterior Lobe and Menstruation, Am. J. Physiol. **95:** 362 (Dec.) 1930. Saiki.[12]

29. Smith, P. E., and Engle, E. T.: Prevention of Experimental Uterine Bleeding in Macacus Monkey by Corpus Luteum Extract (Progestin), Proc. Soc. Exper. Biol. & Med. **29:** 1225 (June) 1932.

30. Engle, E. T.: Uterine Bleeding of the Interval Type in Macacus Monkey During Injections of Extracts of Pregnancy Urine, Proc. Soc. Exper. Biol. & Med. **29:** 1224 (June) 1932.

31. Hisaw, F. L.: Personal communication to the author, 1935.

32. Engle, E. T.: Pregnancy Following Superovulation in the Mouse, Proc. Soc. Exper. Biol. & Med. **25:** 84 (Nov.) 1927.

33. Allen, Edgar: Precocious Sexual Development from Anterior Hypophysis Implants in a Monkey, Anat. Rec. **39:** 315 (Aug. 25) 1928.

34. Hisaw, F. L.; Greep, R. O., and Fevold, H. L.: Experimental Ovulation of Macacus Rhesus Monkeys, Anat. Rec. **61:** 24 (supp.), 1935 (abst.).

Smith and Engle and of Hisaw in producing ovulation of more than the usual number of eggs has far reaching implications for the problem of sterility. Insufficiency of the anterior pituitary gonad-stimulating hormone may explain the frequent anovulatory menstrual cycles of monkeys.

TIME OF OVULATION IN THE MENSTRUAL CYCLE

Evidence placing the time of ovulation in the menstrual cycle has been accumulated for the monkey (Corner,[16] Allen,[4] and Hartman[10b]). Hartman's method of rectal palpation in the monkey has determined ovulation time without laparotomy in successive cycles in the same animals. For woman, in addition to data as to age of corpora lutea, definite evidence in the form of recovery of eggs from the uterine tubes has been presented by Allen, Pratt, Newell, and Bland[35] and by Warren Lewis.[36] Ovulation occurs most frequently at the approximate midpoint between onset of two successive menses.

ENDOCRINE INFLUENCE ON SEX URGE

Although the statement is usually made that there is no period of estrus, a restricted period of increase in mating instincts, during the menstrual cycle, Ball and Hartman[37] have recently shown that just before ovulation in the monkey there is a definite rise in sex desire. Most primates, however, will allow copulation at any time in the menstrual cycle. Mating instincts are easily induced in ovariectomized rats and mice by injections of large amounts of estrogenic material.[38] Other reports have confirmed and extended these observations. The reader is referred to a recent review by Seward.[39]

SUBJECTIVE SYMPTOMS

As to the subjective symptoms that accompany menstruation and its cessation after the menopause, considerable caution must still be used. Analyses of blood and urine show a diminution of secretion of estrogenic substance after the menopause.[40] Beneficial results have been reported from theelin therapy.[41] An extensive clinical trial of theelin has been made recently by Severinghaus.[42] He recommends therapy with estrogenic substance for the alleviation of severe menopause symptoms. He finds that small doses which are insufficient to produce menstruation or to increase libido may be effective for relief of vasomotor and mental symptoms. This phase of the problem is an extremely difficult matter to evaluate, but it cannot be dismissed lightly. The psychologic side of the menopause with the depressions accompanying involutional bodily conditions are recognized as serious factors by both gynecologists and psychiatrists. Hormone therapy may be useful for a transitional period until a compensatory endocrine balance is reached or a more gradual psychotherapy can be undertaken.

OPTIMUM DOSAGE AND EXCRETION OF ESTROGENIC SUBSTANCE

So far, attempts to reduce excessive uterine hemorrhage in woman with theelin therapy have not proved very effective. That some types may be due partly to abnormal endocrine function involving secretion of estrogenic hormone is indicated by increased excretion of hormone in some of these cases.

The optimum dosage of estrogenic substances must be given further experimental test. Analyses of hormone content of the blood and of urine indicate that there may be cyclic fluctuation in the estrogenic hormone secreted in the normal female.[43] Should the clinical dosage be designed to simulate this periodic increase or should the dosage be continued at uniform levels? Until more is known about the absorption of injected extract from subcutaneous or intramuscular sites, the rapid disappearance of injected hormone from the circulation and the control of excretion of the hormone, the matter of dosage must still continue on an empirical basis. Now that quantitative analyses of extremely small amounts of estrogenic substances are possible in twenty-four hour samples of urine,[44] it will be possible to check the matter of possible overdosage from injections of large amounts of theelin in water soluble preparations. One thing that has definitely been decided is that such huge doses of theelin as computed for women on the basis of ratios of body weight to that of small laboratory animals are not required. From 50 to 400 rat units of hormone daily seems to be adequate in most cases for the reestablishment of menstruation and relief of subjective symptoms, especially if atrophy following ovariectomy or the menopause is not too far advanced. Even smaller doses may be effective for other theelin effects than the reestablishment of menstruation, for there undoubtedly exists a difference in threshold level for various reactions to this hormone.

VARIATIONS IN REACTIVITY

Variations in the reactivity of certain organs to hormones during long periods of treatment require further extensive consideration. Also the possibility of the development of some sort of immunity in long continued hormone treatment must be tested further.[45] Since theelin is a crystalline preparation free from proteins, this whole matter must be carefully investigated before generalizations are possible. A recent report indicates that injections of estrogenic substance do not result in the formation of antihormones.[46]

CONCERNING THE PRIMARY CAUSE OF SEXUAL RHYTHMICITY

In looking for the primary cause of the rhythmic nature of menstrual processes, attention has been focused on the anterior-pituitary gonad-stimulating function. A variation in the amount of gonad-stimulating substance in the pituitary at different times in the

35. Allen, Edgar; Pratt, J. P.; Newell, Q. U., and Bland, L. J.: Human Tubal Ova: Related Early Corpora Lutea and Uterine Tubes, Contributions to Embryology, Number 414, Carnegie Institution of Washington, Pub. **22**: 45, 1930.

36. Lewis, W. H.: A Human Tubal Egg, Unfertilized, Bull. Johns Hopkins Hosp. **48**: 368 (June) 1931.

37. Ball, Josephine, and Hartman, C. G.: Sexual Excitability as Related to the Menstrual Cycle in the Monkey, Am. J. Obst. & Gynec. **29**: 117 (Jan.) 1935.

38. Allen, Edgar, and Doisy, E. A.: The Induction of a Sexually Mature Condition in Immature Females by Injection of the Ovarian Follicular Hormone, Am. J. Physiol. **69**: 577 (Aug.) 1924.

39. Seward, G. H.: The Female Sex Rhythm, Psychol. Bull. **31**: 153, 1934.

40. Mazer, Charles, and Goldstein, Leopold: Clinical Endocrinology of the Female, Philadelphia, W. B. Saunders Company, 1932.

41. Werner, A. A.; Johns, G. A.; Hoctor, E. F.; Ault, C. C.; Kohler, L. H., and Weis, M. W.: Involutional Melancholia: Probable Etiology and Treatment, J. A. M. A. **103**: 13 (July 7) 1934. Novak, Emil: A Summarizing Appraisal of Gynecological Endocrinology and Organotherapy, Mellon Lecture, University of Pittsburgh, 1933.

42. Severinghaus, E. L.: The Relief of Menopause Symptoms by Estrogenic Preparations, J. A. M. A. **104**: 624 (Feb. 23) 1935.

43. Frank, R. T., and Goldberger, M. A.: Clinical Data Obtained with the Female Sex Hormone Blood Test, J. A. M. A. **90**: 106 (Jan. 14) 1928. Frank, R. T.: The Rôle of the Female Sex Hormone, ibid. **97**: 1852 (Dec. 19) 1931.

44. Gustavson, R. G., and Green, D. F.: Quantitative Determination of Amount of Estrogenic Substances Excreted Daily in Urine of Normal Human Female, J. Biol. Chem. **105**: xxxiv (May) 1934.

45. Collip, J. B., and Anderson, Evelyn M.: The Production of Serum Inhibitory to the Thyrotopic Hormone, Lancet **1**: 76 (Jan. 13) 1934.

46. D'Amour, F. E.; Dumont, Charlotte, and Gustavson, R. G.: No Antihormones Against Estrin, Proc. Soc. Exper. Biol. & Med. **32**: 192 (Oct.) 1934.

estrous cycle has been demonstrated.[47] When no obvious reason for this change could be found inherent in the pituitary itself, the theory of mutual reaction between anterior pituitary and gonads was introduced to explain female sexual rhythmicity. Then it was demonstrated that removal of the ovaries increases the power of the anterior pituitary to stimulate the ovaries,[48] and that injections of estrogenic hormone would decrease this gonadotropic function.[49] This resulted in the theory that the anterior pituitary stimulates the gonads to secrete a specific hormone, which in turn depresses the gonad-stimulating secretion of the pituitary.[49] With the demonstration, especially by Hisaw and his collaborators, of the two pituitary factors influencing the ovaries, the follicle-stimulating and the luteinizing factors, this theory of interaction must be expanded further. The demonstration of the balance of these purified extracts necessary to induce ovulation in the monkey [34] and cat [50] seems conclusive. It would seem that the follicle-stimulating hormone of the anterior pituitary induces growth of follicles and secretion of follicular hormone, which in turn reacts on the pituitary to induce secretion of the luteinizing factor. This aids development of the corpora lutea, which produce progestin. The follicular hormone (and possibly progestin also) may act on the pituitary temporarily, depressing its secretion of follicle-stimulating hormone until released from the influence of gonad hormones. Although the interaction of pituitary and gonads seems complex at present, extremely rapid recent progress encourages the belief that continued accumulation of experimental evidence will clarify our understanding of this mechanism. The time required for growth of both follicles and genital organs must be considered in any working theory. In my opinion, the decrease in the level of follicular hormone, after a certain amount of growth has been induced in the endometrium, seems well established as the ovarian cause of menstruation.

CONCLUSION

To date the greatest practical value of replacement of ovarian function with hormones has come from providing a foundation of experimental evidence for understanding the basic endocrine mechanism of the menstrual cycle. The "interval" stage of the old classification based on morphologic study of the endometrium may well be omitted.

The menstrual cycle in the endometrium, when considered from the point of view of the ovarian endocrine mechanism responsible, should be characterized as follows:

Stage 1. A period of postmenstrual growth and serous secretion of the glands is the preparatory event. This is the follicular phase under the stimulus of the estrogenic factor.

Stage 2. (*a*) If ovulation occurs, a gradual transition leads to a period of transformation of glands, with change in the nature of their secretion. This is the luteal stage, under the supplementary stimulus of progestin (with some estrogenic substance still present in woman). It should be recognized that this second stage is not necessary for menstruation.

(*b*) If ovulation fails to occur, there follows a phase characterized by sustained but waning hyperplastic endometrium under the influence of diminishing concentration of estrogenic hormone from follicles in regression. This type of cycle is normal in monkeys out of breeding season and is an occasional occurrence in adult women and may be a frequent occurrence near the times of puberty and the menopause.

Stage 3. The menstrual hemorrhage is physiologically the terminal event of the cycle.

Although histories of menstrual cycles will probably continue to be counted from the onset of hemorrhage, the place of menstruation as the last phase of the cycle, possible only after endometrial growth under the action of the estrogenic hormone, seems clearly established.

47. Smith, P. E.: Evidence of a Correlation Between the Amount of Gonad-Stimulating Hormone Present in the Pituitary of the Guinea-Pig and the Stage of the Reproductive Cycle, Anat. Rec. **42**: 38, 1929.
48. Engle, E. T.: The Rôle of the Anterior Pituitary in Compensatory Ovarian Hypertrophy, Anat. Rec. **37**: 275, 1928.
49. Moore, C. R., and Price, D.: Gonad Hormone Functions, and the Reciprocal Influence Between Gonads and Hypophysis with Its Bearing on the Problem of Sex Hormone Antagonism, Am. J. Anat. **50**: 13, 1932.
50. Foster, M. A., and Hisaw, F. L.: Experimental Ovulation and the Resulting Pseudo-Pregnancy in Anoestrous Cats, Anat. Rec. **62**: 75 (April) 1935.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

BURDICK THERAPEUTIC BAKER ACCEPTABLE

Manufacturer: The Burdick Corporation, Milton, Wis.

This device is a very practical variety of therapeutic baker. It is approximately 24 inches high, 18 inches wide and 30 inches long. It may be extended 4¼ inches higher. The reflector is nickel plated inside, and there is an air space between the reflector and the outside hood. It is equipped with eight carbon filament lamps of 60 watts capacity. The entire baker is rated at 660 watts, 110 volts. There is a dual switch, which enables the operator to switch on four or eight lamps at a time.

The unit has been tested for its electrical consumption. It was found that with all lamps burning on a 110 volt line the current reading was 3.8 amperes, or approximately 420 watts. The unit is finished in white enamel and is of rugged construction. Its weight is about 25 pounds. In view of the usefulness of the unit, the Council voted to include the Burdick Therapeutic Baker in its list of accepted devices.

AURATONE NOT ACCEPTABLE

Manufacturer: The Auratone, Inc., Grand Rapids, Mich.

Claims are made for the Auratone that it will determine relative hearing ability of individuals afflicted with deafness and that it will correct defects in hearing by administering controlled vibrational exercises.

The unit was investigated in a physical laboratory acceptable to the Council. The report stated that the Auratone appeared to give consistent results, as far as frequency and volume were concerned. The same frequency and the same volume, within reasonable limits of observation, were observed with dials set at the same position from day to day. These results were checked by means of an oscilloscope and an oscillator.

The device was placed in a clinic acceptable to the Council to determine the value or possible harmful effects of the Auratone as a method of treating deafness. Treatment by this instrument consists in running an ascending and a descending scale of musical tones determined by the limits of the machine; that is, from a low frequency of about 124 to a high frequency of slightly over 2,000.

This investigation, covering a period of about ten months, consisted in giving a total of 777 treatments to both ears [1] of twenty-five partially deaf people. An average of thirty-one treatments was given the patients. The types of deafness were not selected but were taken as the individual applied to the clinic. A clinical diagnosis of nerve type deafness was made in fourteen of the patients; three had a diagnosis of otosclerosis, one patient seemed to have a combined otosclerosis

1. In two instances, only the right ears were treated.

and chronic middle ear deafness; three had what seemed to be a mixed type of deafness, that is, a partial nerve deafness and a partial chronic adhesive otitis media. Two patients were diagnosed as having chronic middle ear deafness. One patient had had a sudden attack of deafness, tinnitus and vertigo resembling Ménière's syndrome. One other patient had a nerve type deafness of twenty-five years' standing but with a sudden onset with symptoms of Ménière's syndrome. All the patients were adults, their ages ranging from 25 years to 76 years, with an average age of about 49 years.

An effort was made to give the treatments or "exercises" three times a week. Some of the patients came two times a

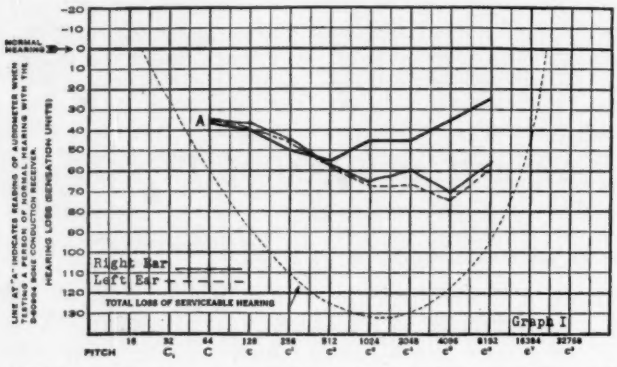

Chart 1.—Average of twenty-five patients before treatments with Auratone.

week and some were intermittent in their attendance, with occasional lapses.

Graphs of hearing in each ear as determined by the 2-A Audiometer were taken of each patient before treatment was begun. Additional graphs have been taken about every ten treatments. Special effort was made to exercise the areas of more marked deafness. Care was taken to give only sufficient volume to be comfortable to the patient, as it was felt from former experiences that a detrimental result might follow with excessive amplitudes.

Chart 1 is an average of twenty-five patients taken before treatments were begun. Chart 2 is an average of these twenty-

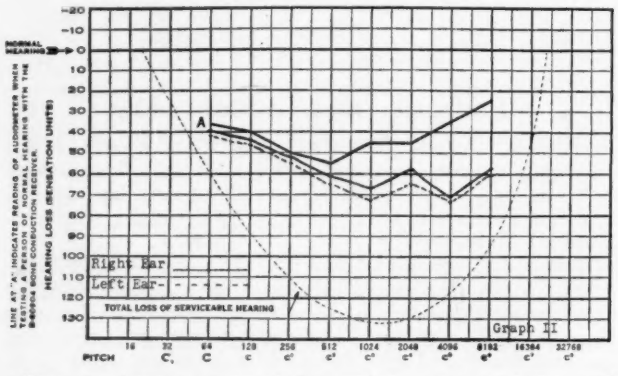

Chart 2.—Average of twenty-five patients after treatments with Auratone.

five patients after they had had from ten to seventy-seven treatments each.

An average of the various frequencies in both ears before treatment compared with an average of the frequencies in both ears at the end of the treatment period gives an average loss of 3¼ sensation units for each frequency of 64 to 8,192 inclusive. However, five patients who had had from twenty-six to forty-one exercises showed an average improvement of 3 sensation units in the voice range of frequencies.

Many of the patients seemed to think they could hear better after the treatments. However, this does not seem to be borne out by the Audiometer.

In view of the foregoing, the Council voted not to include the Auratone in its list of accepted devices for physical therapy, because, as a method of treating deafness, it has not proved of value in the cases treated.

Council on Pharmacy and Chemistry

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

PAUL NICHOLAS LEECH, Secretary.

HEXYLRESORCINOL SOLUTION S. T. 37 OMITTED FROM N. N. R.

Hexylresorcinol Solution S. T. 37 was accepted by the Council in 1928 as a dosage form of Caprokol (Sharp & Dohme). The product is a solution of Caprokol (Hexylresorcinol-S. & D.) 1 part in a liquid composed of glycerin 30 per cent and water 70 per cent, 1,000 parts. The expression "S. T. 37" was at that time accepted as an abbreviation for the surface tension of the solution, which is 37 dynes. It was stipulated that the use of the term "S. T. 37" was not to be preempted, and that the product should not be referred to as "S. T. 37" but as "Hexylresorcinol Solution S. T. 37."

The acceptance of Hexylresorcinol Solution S. T. 37 expired with the close of 1931. Since that time the product has been retained in N. N. R. by sufferance, pending settlement of the various objections and new considerations raised by the firm in regard to the conditions on which the Council voted to reaccept it. The status has therefore been that of a nonreaccepted product.

After much discussion and correspondence, Sharp & Dohme definitely refused to comply with an essential condition on which the Council was forced to base the reacceptance of Hexylresorcinol Solution S. T. 37; namely, discontinuance of the expression "S. T. 37" in connection with the name of the product. This will be discussed later. Other matters questioned in the Council's reconsideration of Hexylresorcinol Solution S. T. 37 were:

(*a*) The claims of efficacy permissible for the product.
(*b*) The use by the firm of advertisements featuring the use of the product in "great hospitals."

CLAIMS OF ANTISEPTIC AND GERMICIDAL EFFICACY

No claim for Hexylresorcinol Solution S. T. 37 as such was given in the New and Nonofficial Remedies description of the product. Caprokol (Hexylresorcinol-Sharp & Dohme), its chief constituent, is stated to possess marked germicidal properties; but equal efficacy could not, of course, be ascribed to a one-tenth per cent solution (1 part of Hexylresorcinol [Caprokol] in 1,000 parts of a solution containing 30 per cent glycerin). The Council recognized the claim of Sharp & Dohme that the reduction of surface tension in the glycerin solution increased the germicidal power. In reviewing the advertising of the firm at the time of reconsideration, the Council found that certain limitations were needed. The Council adopted the following statement of limitations, which was transmitted to Sharp & Dohme:

(*a*) that the surface tension reducing properties of Hexylresorcinol (Caprokol) are advantageous in aiding this germicide to come into contact with bacteria;

(*b*) that solutions of this substance (including the 1:1,000 solution in 30 per cent of glycerin) are aided by the surface tension reducing properties to penetrate small cracks and crevices;

(*c*) that within the resorcinol series of compounds up to the heptyl derivative, there is a parallelism between surface tension reducing properties and germicidal action;

(d) that claims may not be based on the comparison of disinfectants solely in terms of their ability to reduce surface tension, or based specifically on the particular surface tension value of the Sharp & Dohme 1:1,000 solution of Hexylresorcinol in 30 per cent glycerin;

(*e*) that Caprokol (or Hexylresorcinol Solution) has not been shown on internal administration to produce analgesic action on the genito-urinary tract;

(*f*) that claims for analgesic action of the solution applied for short periods in gargles or in other ways to mucous membranes are not acceptable unless there is direct convincing evidence that analgesia is produced by the particular method of application;

(*g*) that the claim for a moderate (limited) but distinct analgesic action for this solution when applied continuously as a moist dressing to burns, scalds and inflamed surfaces is acceptable; and

(*h*) that recommendations for application of Hexylresorcinol Solution to the conjunctiva should be accompanied by reference to the considerable though brief irritation caused by such application.

The firm has repeatedly signified its intention of meeting these limitations in advertising of the product but has not done so, and at the time of the omission of Hexylresorcinol Solution S. T. 37 from N. N. R. nearly two years later it still had not put into effect many of the limitations set forth.

ADVERTISEMENTS FEATURING "GREAT HOSPITALS"

For some time the Council's office has been receiving letters from physicians objecting to advertisements of Hexylresorcinol Solution S. T. 37 in lay publications featuring the use of the product in certain hospitals in such a way as to make this use an endorsement to influence lay persons to use the product. The Council's referee reported the matter to the Council as follows:

In order to show the basis for the objections which have been made to the Council, the text of the advertisement from the September 1933 issue of *Hygeia* is herewith reproduced.

Used Daily by leading Specialists at the Grace Hospital, New Haven. Use it in your own home.

"Hexylresorcinol Solution S. T. 37 is used regularly for its great germ-destroying power combined with safety."
Grace Hospital, New Haven, Conn.

The Grace Hospital, in New Haven, Conn., justly priding itself on its splendid, modern equipment and unrivaled medical care, is still another of the great hospitals regularly using Hexylresorcinol Solution S. T. 37 (1: 1,000).

This hospital says, "So powerful is this antiseptic that it is used here daily for the cleansing of wounds and in operations. This efficient antiseptic spreads more rapidly and more deeply than many other antiseptics into the crevices of wound tissue."

Hexylresorcinol Solution S. T. 37 is stronger than carbolic acid in any usable solution—yet so safe, you can use it freely in your own home.

Pour it at once into scratches, cuts, open wounds. In case of serious injury, consult your physician. Hexylresorcinol Solution S. T. 37 does not sting or burn. Teach your children to use it freely. The seal of the Council on Pharmacy and Chemistry of the American Medical Association should serve as an indication of its trustworthiness.

Hexylresorcinol Solution S. T. 37 is economical. The 50c bottle is now a whole ⅔ bigger than before. And you get the large size for only $1.00 instead of $1.25. Prices are now the same in both the United States and Canada. Buy a bottle today!

Hexylresorcinol Solution S. T. 37 [Picture of bottle.]
Made by Sharp and Dohme [The seal of the Council.]

The salient features of this text are:

1. An advertisement of the Grace Hospital of New Haven as "another of the great hospitals" having "splendid modern equipment and unrivaled medical care."

2. A statement that Hexylresorcinol Solution S. T. 37 is used daily in this hospital by leading specialists.

3. Several statements of claims for Hexylresorcinol Solution S. T. 37 as a "powerful antiseptic," as a substance which spreads rapidly and deeply into the crevices of wound tissue, as a preparation combining great germ-destroying power with safety. These claims, although expressed in the stock phrases of the manufacturer, are published as quotations from the Grace Hospital.

4. Claims for the product made by the manufacturer.

5. Directions for use of the solution by laymen.

6. Imperative recommendations for the layman to use it in his home and to teach his children to use it freely.

7. A statement that the Council's seal should serve as an indication of the trustworthiness of the solution.

The firm received permission to use the name of the hospital, photographs taken in the hospital, and to quote the hospital. An affidavit to this effect, including the quoted statements, was given by Mr. H. V. Whipple, who was superintendent of the Grace Hospital on June 28, 1933, the date of the signing of the affidavit. It will be shown that this affidavit cannot cover all the statements in this advertisement.

The referee has the following objections to the advertisement:

1. Without prejudice to the Grace Hospital, it seems to the referee inappropriate for one of the American Medical Association publications to advertise this hospital as one of the great hospitals with unrivaled medical care unless the hospital has been examined to determine the truth of the claim. The referee understands that this was not done in this case. Furthermore, it seems to the referee not in good form to advertise a hospital in this manner.

2. The advertisement is the publication of a sort of double testimonial; a testimonial from a personified hospital and a testimonial from unnamed specialists. Sharp & Dohme has in the past used testimonials abundantly. The Council has never approved of them and has specifically required the firm to abandon their use in advertisements. The firm has discontinued numerous testimonial pamphlets in conformance with the Council's requirements but continues to use this type of testimonial.

The use of hospital endorsements of Hexylresorcinol Solution was a subject of special investigation by the Council in 1932. Answers to a questionnaire disproved most of the firm's statements that "great hospitals" were using the preparation. It appeared to be especially objectionable for the firm to quote or so to arrange phrases as to give the laymen the impression that since the solution was used in some "great hospital" it should be used freely at home by laymen.

3. The statements quoted as coming from the Grace Hospital setting forth the antiseptic, germicidal, spreading and penetrating powers and safety of the preparation are expressed in well known words of the firm's advertising copy writer. The point here is: Does the hospital know from the results of its own tests that these statements are true? A hospital should state only the results of its own experience; an advertisement containing the endorsement by a hospital may be acceptable only to the extent to which it gives expression of the hospital's actual knowledge. It seems obvious from the text of this advertisement that the hospital is using phrases furnished by the manufacturer. The affidavit does not include any affirmation that these properties of the solution were determined by experiment in the hospital. Whether the hospital has made necessary tests could be determined by inquiry. Sharp & Dohme should be informed that the Council considers it misleading for a firm to credit to second parties statements that are lifted from the claims of the firm itself.

4. The statement of the significance of the Council's seal in this advertisement appears to the referee to be objectionable, both on account of the context of the paragraph in which the statement occurs and because of the phraseology. The sentence is cleverly written in the conditional mode. Nevertheless, the reference to "trustworthiness" seems to go beyond the statement as to the significance of the seal regarded as permissible according to New and Nonofficial Remedies, 1933, page 12. It is stated there that a firm may refer to the significance of the seal as follows: "The 'accepted' seal denotes that (name of article) has been accepted for New and Nonofficial Remedies by the Council on Pharmacy and Chemistry of the American Medical Association" and that "further statements in regard to the seal must be submitted to the Council and found acceptable before they may be used." The Council has taken no action justifying the firm's advertisement to the laity the implication that the Council vouches for the "trustworthiness" of the preparation in all sorts of "scratches, cuts and open wounds," and in the miscellaneous free use of the solution by children.

No objection can be raised to the parts of the advertisement which give direct statements on the use of the solution in the Grace Hospital, and the firm's claims for the preparation which are permissible under the description in New and Nonofficial Remedies.

The Council voted: 1. That the advertising department of the American Medical Association be informed that the Council does not approve of certain features of the Grace Hospital-Hexylresorcinol Solution S. T. 37 advertisement published in *Hygeia*, September, 1933, for the reasons set forth in this report. 2. That Sharp & Dohme and any other firms submitting advertisements containing hospital endorsements be informed that the Council regards such advertisements as unacceptable testimonials unless the statement of the endorsement is limited to the name and place of the hospital, a simple statement of the use of the preparation in the hospital, and statements of properties and results supported by reports of actual tests made in the hospital. Advertisements mentioning a hospital must also conform to the type deemed permissible under the Principles of Medical Ethics issued by the American Medical Association. 3. That the Council regard as unacceptable the use of a hospital's endorsement of a preparation as a general recommendation for free application of the preparation in the layman's home. 4. That as a general rule the Council will not deem acceptable advertisements from manufacturing firms containing statements extolling the equipment, medical service or other conditions of a hospital; and the Council further voted that the Council may approve of an advertisement containing a hospital endorsement of a preparation provided the advertisement is limited to a direct statement based on the hospital's use of the preparation and tests of its properties, and does not conflict with any of the general rules and special requirements of the Council.

A member of the Council, in discussing the report, commented that such a statement should be signed by the individuals who did the work.

THE OBJECTIONS TO "S. T. 37"

During 1931 the dangerous and confusing multiplication of number and letter abbreviations had prompted the Council so to extend its enforcement of its rule 8 as to provide against the use of letters and numerals in the names of products. The Council had always held this objectionable because of the tendency to substitute them for the actual name, which in the case of Council accepted products is required to be informative. The following proposed revision of the rules was adopted:

Since the use of numeral or alphabetical designations in connection with drug names tends to take the emphasis away from the name and to displace the name, thus leading to confusion, the Council will not recognize the name of a drug in which the numeral or letter is an integral part of the name, except in special cases in which the use of a numeral or letter seems desirable because further improvement of the product is anticipated, in which case the Council may grant a special exemption from the rule. Under this rule the use of numerals or letters in connection with the name of a product will not be permitted on labels or in advertising, unless the numeral or letter is clearly separated from and subordinated to the name by type, and if feasible by position.

Since the reacceptance of Hexylresorcinol Solution S. T. 37 was being considered, the Council voted that the manufacturer be required to meet the following conditions with regard to the name before the product could be reaccepted:

(*a*) to adopt the simple name "Hexylresorcinol Solution";
(*b*) to agree to discontinue the use of the abbreviation "S. T. 37" in the name, on the label, and in all advertisements, circulars and pamphlets relating to this preparation;

(*c*) to print the statement "surface tension 37 dynes" in type smaller than the name and separated from the name on labels, circulars, pamphlets and advertisements; and

(*d*) to complete these changes before a specified date.

When the firm was informed of these conditions, it raised the objection that the Council had previously recognized the use of the expression "S. T. 37" and in consequence that permission to use it should not be revoked.

The Council took cognizance of the firm's contention that it had accepted the name Hexylresorcinol Solution S. T. 37. In counterargument it was pointed out that the Council's agreements are limited to three years, with a reservation that this term may be shortened if new facts come to light. The rules state expressly that the Council will enforce any new rules when the three year period has expired. The clause referred to reads:

> "Any amendments to the rules, by specific requirements or by interpretation, which may be made after the acceptance of an article, shall not apply to such article until the period of acceptance has elapsed. At the end of this period the article, if it is not eligible under the amended rules, will be omitted."

This leaves no doubt as to the right of the Council to enforce new rules.

It is true that special leniency has been extended to proprietary names that were established before the rules were promulgated, this leniency being justified by the vested interest in such names and the losses which changes would entail. However, when the Council adopted the ruling to exclude numbers and letters from names, it did not exempt established preparations, and properly so, because it had never accepted the use of such devices as an integral part of a *proprietary* name; it was merely clarifying a situation which had undesirable implications. Manufacturers in general seem to have accepted this as a just ruling, especially as the Council has been liberal in giving time to effect the change without unnecessary hardship—and the Council indicated its intention of doing so in the case of Hexylresorcinol Solution S. T. 37. It became clear that the difficulty in the Council's reconsideration of Hexylresorcinol Solution S. T. 37 has arisen because the firm had broken a rule of the Council, which was in force when "S. T. 37" was first accepted, and against which the manufacturer had been specifically warned, but which it violated without notice to the Council. In brief, the firm had been warned that "S. T. 37" could not be accepted as a proprietary (i. e., protected or monopolistic) name because the rules prohibit the use of two proprietary names for a given substance. The Council had accepted the use of the letters as part of a descriptive *nonproprietary* name because the firm has already preempted its proprietary name "Caprokol Solution" for an oily solution and because it seemed fair that attention should be called to the special property represented by the abbreviation. Notwithstanding these warnings, it appears that the firm copyrighted the expression "S. T. 37" (without the knowledge of the Council—in fact the Council was not informed of this step until it came to light in the present controversy) and thus made it a proprietary name instead of a description of a property and applied it to articles, such as a tooth paste, which could not have the surface tension quality for the description of which the abbreviation had been accepted. The legality of trademarking a descriptive name is itself doubtful; but there seems no doubt that the firm permitted the Council to believe that it was using a nonproprietary name when, in fact, it had converted this in a proprietary name. Had the firm abided by the rules—which, it is believed, were fully understood on its part—no difficulty would have arisen; for there would now be no special interest in retaining the letters "S. T. 37," which any one could use. Since the physical property to which the firm intended to call attention has ceased to be a novelty, the only interest which the firm has in retaining these letters is the interest which it secured by the apparently secret violation of the Council's rules.

The foregoing reasons for the Council's decision were communicated to Sharp & Dohme and were the subject of correspondence between the Council and the firm. In the end, the firm informed the Council that it could not agree to discontinue the use of the objectionable expression "S. T. 37" in the name of the product. In the public interest, the Council was therefore compelled to omit from New and Nonofficial Remedies the product which had been accepted as "Hexylresorcinol Solution S. T. 37."

SUBSEQUENT CONSIDERATION

When a report of the foregoing decision of the Council was sent to Sharp & Dohme, the firm replied that it desired to publish an advertisement in THE JOURNAL and in all publications of the American Medical Association. The Council felt, and the Trustees of the Association concurred, that as this advertisement obscured and thereby misrepresented the essential point at issue, it should not be accepted as an advertisement, but that its wording might be appended to this report, so that those who have read the foregoing article may also have before them the point of view of the manufacturers. This wording is as follows:

> "A STATEMENT
> FROM SHARP & DOHME
> TO THE MEDICAL PROFESSION
>
> The Council on Pharmacy of the American Medical Association has recently revised Rule 8 to prohibit the use of letters and numerals as an integral part of a product name.
>
> Since the Council has stated that it cannot make permanent exceptions to any of its rules, this revision of Rule 8 operates retroactively and therefore renders the established name HEXYLRESORCINOL SOLUTION S. T. 37 and the product so named, ineligible for further inclusion in New and Nonofficial Remedies.
>
> Sharp & Dohme has been forced therefore to regretfully submit to the omission of Hexylresorcinol and its previously accepted dosage forms from N. N. R. and so notified the Council on January 12, 1934.
>
> We wish to emphasize the fact that the product and the claims made for it during six years of Council acceptance remain unchanged, the sole reason for this action on our part being the conflict between an established name and a new Council rule as to nomenclature.
>
> SHARP & DOHME
> Philadelphia
> Baltimore"

[END OF PROPOSED ADVERTISEMENT]

All the points raised by the firm had been already answered in the Council's report, but it seems advisable to recapitulate them:

(1) The advertisement gives the impression that Rule 8 has been recently revised. The correct statement would be that Rule 8 was revised in January 1932.

(2) The advertisement gives the impression that revision of the Rule operates retroactively. In the opinion of the Council this is not an accurate statement since the Rule has been applied at all reacceptance dates. The statement is particularly untrue with reference to Hexylresorcinol Solution S. T. 37. Hexylresorcinol Solution S. T. 37 was accepted for only three years. By sufferance it was kept in New and Nonofficial Remedies two years after the expiration of the last period of acceptance. At the time it was accepted it was stated clearly that the use of the abbreviated expression "S. T. 37" could not be preempted. Years later the Council was amazed to find that the firm had trademarked S. T. 37. When products are accepted for only three years there is no claim of retroactivity because the Council's rules specifically provide:

> Unless otherwise determined at the time of acceptance, Articles admitted to New and Nonofficial Remedies will be retained for a period of three years, provided that during that period they comply with the rules and regulations which were in force at the time of their acceptance. . . . At the end of this period, all articles will be carefully re-examined for compliance with existing rules. . . .
>
> Any amendments to the rules, by specific requirements or by interpretation, which may be made after the acceptance of an article shall not apply to such article until the period of acceptance has elapsed. At the end of this period the article, if it is not eligible under the amended rules, will be omitted. (See N. N. R., 1934, pp. 13, 14.)

Insofar as all measures which correct past undesirable practices are retroactive then the action of the Council could be considered retroactive but only in this restricted sense. The firm placed itself in the wrong by arrogating to itself, without notice to the Council, a proprietorship in the descriptive abbreviation "S. T. 37." The Council had not intended or conceded that the firm should have a proprietary right to this abbreviation of the name, and in fact repeatedly warned against the firm's taking this action. The chief deprivation, as indicated by the foregoing advertisement concerning the Council's action,

is to take away from the firm something that had never existed so far as the Council is concerned. Indeed, had the Council known that the firm had secured a copyright on this abbreviation, even though this new number rule had not been passed, the name would have been subject to rejection. Furthermore, no other firm has refused to comply with the rule that numbers cannot be used for, or as part of, a name.

(3) The last paragraph of the advertisement is essentially true for the six years during which the product was accepted. But it fails to state that the claims remained practically the same although the Council repeatedly stipulated that some of them should be changed. Many forms of advertising were in fact discarded by the firm. Other claims to be questioned were not further considered because of the argument on the name.

A further report of the Council's proceedings in reference to Hexylresorcinol Solution S. T. 37 was conveyed to the firm of March 30, 1935. The firm replied (April 8):

"We have nothing further to add except to reiterate that we have always been ready and willing to comply with every suggestion of the Council regarding our printed matter and promotional efforts relative to Hexylresorcinol Solution S. T. 37, with the exception of the change in the title of our established name for this product."

In the opinion of the Council the reply of the firm is only a reiteration of the argument which has been covered by the statements embodied in the preceding report. The Council reaffirmed its previous decision and authorized publication of the original report with the foregoing statement of subsequent consideration.

CAPROKOL OMITTED FROM N. N. R.

Caprokol (Hexylresorcinol-S. & D.) was accepted for inclusion in New and Nonofficial Remedies in 1924. The following dosage forms were accepted by the Council:

Capsules Caprokol (Hexylresorcinol-S. &. D.), 0.15 Gm.
Caprokol (Hexylresorcinol-S. & D.), 2½ per cent Solution in Olive Oil.
Hexylresorcinol Solution S. T. 37.

When the customary three year period of acceptance expired in 1931, the Council voted to reaccept Caprokol provided the manufacturers agreed to make a drastic revision in their advertising propaganda and to submit convincing evidence of the therapeutic value of the drug in all the numerous conditions in the treatment of which its use was recommended. Later, substantiation of the claims that the substance has analgesic action and has special germicidal properties due to its ability to lower surface tension were added to the requirements of the Council for the reacceptance of Caprokol. In the course of the next two years the firm omitted a number of the most objectionable circulars and submitted evidence on the question of the analgesic action. During this time, however, the firm did not submit any new evidence on the therapeutic value of the preparation in the treatment of genito-urinary infections and numerous other conditions in which its use was recommended as a beneficial germicidal agent.

In the discussion of claims made on the basis of the surface tension of both Caprokol and of the dosage form, Hexylresorcinol Solution S. T. 37, the question of nomenclature arose, leading to the final refusal of the firm to dispense with the initials and numerals in the name and the consequent omission of Hexylresorcinol Solution S. T. 37 from New and Nonofficial Remedies. At that time the firm requested the omission of Caprokol also, stating that its continued inclusion after the exclusion of Hexylresorcinol Solution S. T. 37 might prove a source of misunderstanding with the Council. The Council considered this a reasonable request.

Meanwhile the firm had not submitted the new evidence required to substantiate the claims made for the product as a germicide and as a genito-urinary antiseptic. It had furthermore indicated disagreement with the Council's objection to the use of antiseptics as gargles and mouth washes. As a result of these considerations, the Council voted to omit Caprokol because the claims for its therapeutic value have not been substantiated and because the manufacturer finds it impossible to handle this substance and certain of its dosage forms separately from the unacceptable dosage form, Hexylresorcinol Solution S. T. 37.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

BAUMGARTEN'S PROCESS ALLISON COTTONSEED FLOUR, PARTIALLY DEFATTED, COOKED

Manufacturer.—The Schulenburg Oil Mill, Schulenburg, Texas.

Description.—Partially defatted, cooked, cottonseed flour.

Manufacture.—Choice cottonseed is cleaned, freed from lint and hulls, passed between steel rolls, and cooked in four consecutive cookers, in each of which the mass is cooked for twenty minutes, the temperature of the fourth cooker being from 114 to 116 C. A large portion of the oil is expressed from the cooked material by hydraulic pressure. The resulting "cake" is cooled, ground fine, bolted, and packed in sacks.

Analysis (submitted by manufacturer).—

	per cent
Moisture	6.3
Ash	5.8
Fat (ether extract)	11.0
Protein (N × 6.25)	50.2
Crude fiber	3.9
Carbohydrates other than crude fiber (by difference)	22.8

Calories.—3.9 per gram; 111 per ounce.

Nontoxicity.—Feeding experiments with rats indicate the absence of toxicity in cottonseed flour processed according to this method.

Claims of Manufacturer.—Rich in high quality protein and vitamins B and G. Free from toxic form of gossypol.

(1) STAYSWEET LIGHT CREAM (STERILIZED)
(2) STAYSWEET HEAVY CREAM (STERILIZED)

Distributor.—Seggerman Nixon Corporation, New York.

Packer.—S. M. A. Corporation, Cleveland.

Description.—(1) Canned sterile homogenized cream of 18 per cent milk-fat content. The same as Pantry Table Cream (Sterilized) (THE JOURNAL, Feb. 25, 1933, page 576).

(2) Canned sterile homogenized cream of 36 per cent milk-fat content. The same as Pantry Whipping Cream (Sterilized) (THE JOURNAL, March 4, 1933, page 662).

Vitamins.—The vitamin content may be expected to approximate that of the pasteurized cream used.

Claims of Distributor.—For all table uses of cream and whipping cream respectively.

SPARKLE GELATIN DESSERT—CHERRY, LEMON, LIME, ORANGE, RASPBERRY, STRAWBERRY FLAVORS

Manufacturer.—Quaker Maid Company, New York.

Description.—Gelatin dessert powders containing sucrose, gelatin, tartaric acid, fruit flavors (respectively terpeneless oils of orange or lemon, distilled oil of lime, and natural concentrated strawberry, raspberry or cherry flavors) and certified food colors.

Manufacture.—The ingredients in formula proportions are automatically mixed, dried and packed in cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	1.5
Ash	0.2
Protein (N × 5.55)	9.5
Sucrose	86.8
Total carbohydrates (by difference)	86.6
Titratable acidity as tartaric acid	2.2

Calories.—3.8 per gram; 108 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 25, 1935

STATUS THYMICOLYMPHATICUS

Few conditions have been so imperfectly understood as status thymicolymphaticus. There has been no agreement on a definition for this condition, on its essential pathologic or physiologic features, or on its etiology. The diagnosis status thymicolymphaticus or "thymic death" has far too frequently served to conceal the examiner's ignorance of the real cause of death. It has been supposed that the condition depends in some way on hyperfunction or dysfunction of the thymus. Such relationship has not been demonstrated, and evidence is lacking that the thymus is a factor in the mechanism of death in the cases so assigned. Even in the rare cases in which the thymus is so enlarged as to embarrass respiration by pressure on the trachea, death has not been shown to be the result of such obstruction. Indeed, some authors [1] relegate status thymicolymphaticus to the realm of medical mythology. The condition was recently made the subject of investigation by a special committee of the Medical Research Council and the Pathological Society of Great Britain and Ireland. The report [2] concludes that the facts revealed "afford no evidence that so-called 'status thymicolymphaticus' has any existence as a pathological entity."

Notwithstanding this summary dismissal, the fact remains that death occurs in certain cases from relatively trivial and apparently inadequate causes. A small percentage of apparently normal persons have an increased susceptibility to infections, intoxications, drugs, anesthetics and physical trauma. In such persons death may follow a minor infection, a slight blow, the extraction of a tooth, a trivial surgical procedure, or the administration of anesthetics, vaccines or serums. Death occurs by circulatory failure, which in some cases resembles shock. Necropsy frequently does not show an adequate cause for the death. The conditions often found and regarded as significant are hypoplasia of the adrenals, the genitalia, the heart and great vessels, underdevelopment of secondary sex characteristics, and general lymphoid hyperplasia associated with persistence of the thymus.

Recent investigations on the function of the adrenal cortex have produced evidence which may have a bearing on so-called status thymicolymphaticus. Hyperplasia or adenoma of the adrenal cortex results in virilism and sexual precocity. There is hyperactivity of the reproductive function and prominence of secondary sex characteristics. Presumably, opposite features would result from adrenal cortical deficiency. Severe cortical deficiency results in the gradual development of circulatory failure, ending in death. Experimental cortical deficiency of sublethal degree results in weakness, low blood pressure, ease of fatigue, abnormal sensitivity to intoxications and other changes. At postmortem examination, lymphoid hyperplasia may be found. Such experiments have resulted in hyperplasia of the thymus in young animals, and in its active regeneration in older animals when partial involution of the thymus has already occurred.[3] These analogies are suggestive and support the belief that this condition may be related to a dyscrasia of adrenal cortical function. The evidence is not conclusive, but it supplies a working hypothesis on which further investigations are proceeding. The newer studies may yet yield an explanation of status thymicolymphaticus.

1. Greenwood, Major, and Woods, Hilda M.: Status Thymicolymphaticus Considered in Light of Recent Work on Thymus, J. Hyg. **26**: 305 (Aug.) 1927.

2. Young, Matthew, and Turnbull, H. M.: An Analysis of the Data Collected by the Status Lymphaticus Investigation Committee, J. Path. & Bact. **34**: 213 (March) 1931.

3. Marine, David: Status Lymphaticus, Arch. Path. **5**: 661 (April) 1928. Britton, S. W.: Adrenal Insufficiency and Related Considerations, Phys. Rev. **10**: 617 (Oct.) 1930. Jaffe, H. L.: The Suprarenal Gland, Arch. Path. **3**: 414 (March) 1927.

THE ACTIVE OXYTOCIC PRINCIPLE OF ERGOT

For centuries it has been recognized that ergot possesses a property of stimulating uterine contractions. The accurate therapeutic administration of ergot, however, has been handicapped by variations in oxytocic potency of different preparations and difficulties in standardization. Much effort has been directed toward obtaining an extract or purified preparation that can be readily standardized and that possesses stability, with actions and dosage that are constant. Ergot itself is a complicated mixture, but in the past the active principle has generally been believed to rest in the alkaloidal constituents.

Recently workers in the United States and in England have reported almost simultaneously derivatives of ergot that they respectively believe are the most refined and active ones yet described. In February 1935 an article by a group of Chicago workers [1] appeared in which they state that their preparation "contains all the oxytocic principles (alkaloidal as well as nonalkaloidal") and say that it is "the crude extract,

1. Davis, M. E.; Adair, F. L.; Rogers, Gerald; Kharasch, M. S., and Legault, R. R.: A New Active Principle in Ergot and Its Effect on Uterine Motility, Am. J. Obst. & Gynec. **29**: 155 (Feb.) 1935.

but in reality, it is a very fine, almost crystalline powder. It is completely soluble in alcohol and all hydrophilic solvents. It has no unpleasant properties characteristic of the fluidextract of ergot. This preparation was dissolved in alcohol and administered as such or given in the form of a capsule. The total amount of the drug administered in each instance was the residue from a 3 Gm. sample of the crude drug." By the colorimetric test or the precipitant reagent the total alkaloidal content per dose is less than 1 : 100,000. A note at the end of this communication states that since the work was reported it has been possible to isolate the pure active principle in crystalline form, which has been found therapeutically active in doses of 0.1 mg. in the postpartum patient. This statement, coming at the end of the report, naturally gives rise [2] to the supposition that the studies reported were made with a product less pure than the ultimate crystalline substance. The Chicago workers have, however, conducted investigations with the pure crystalline "ergotocin" on more than 200 patients.[3]

The most satisfactory method of assay for this principle was found to be on the human postpartum uterus by a method previously described [4] and on the postpartum uterus of the dog. With this method it was possible to make accurate determinations of the oxytocic effect.

In March, an article by Dudley and Moir [5] appeared on the same subject. They reported the isolation of 0.82 Gm. of crystals from 10 Kg. of defatted ergot. In clinical trial, by a method on the postpartum human uterus, this crystalline substance was found actively oxytocic. An adequate dose for intramuscular administration appeared to be from 0.25 to 0.5 mg., which produces strong uterine contractions in from three and one-half to four and one-half minutes.

There seems no question that the work of the two groups was done entirely independently. The chemical and physiologic identity of the two substances is not a matter of equal certainty. In the derivative obtained by the Chicago investigators,[6] from 3 to 4 Gm. of crude defatted ergot yields 0.3 mg. of the purified substance, which they have named "ergotocin." [7] The British workers obtained a roughly equal portion of their crystalline product (approximately 0.8 mg. per gram of crude defatted ergot). A satisfactory chemical comparison of the two substances is not yet possible on the basis of published statements. It is necessary to point out, however, that the British workers report a specific rotation of $[a]_D$ of the material recrystallized from benzene $= -45°$. The Americans [6] state that "the optical rotation of the salts of "ergotocin" so far investigated is positive." On this basis there is no reason to conclude that the two substances are chemically identical.

Whatever the ultimate outcome, it is certain that one or more crystalline derivatives of ergot have now been prepared. The method of assay on the human postpartum uterus is relatively satisfactory and in all probability a more active and stable substance will soon be available for clinical administration.

2. "Ergotocin," Lancet **1**: 848 (April 6) 1935.
3. Personal communication to the Editor.
4. Adair, F. L., and Davis, M. E.: A Study of Human Uterine Motility, Am. J. Obst. & Gynec. **27**: 383 (March) 1934.
5. Dudley, H. W., and Moir, C.: The Substance Responsible for the Traditional Clinical Effect of Ergot, Brit. M. J. **1**: 520 (March 16) 1935.
6. Kharasch, M. S., and Legault, R. R.: Ergotocin Science **81**: 388 (April 19) 1935.
7. "Ergotocin" is not to be confused with ergotoxin.

HORMONES AND BLOOD LIPIDS

A vast amount of experimental investigation during the last few years has demonstrated that the quantity of body fat may be significantly influenced by the secretions of certain endocrine glands. The effects on fat metabolism of the hormones thyroxine, insulin and some substance present in the pituitary are well known. Recently,[1] the relation of insulin and of posterior pituitary extract to lipid metabolism has been studied by a method in which the results of fat tolerance tests were compared in thin and obese subjects treated with and without insulin or pituitary extract. The patients were given a fat test meal consisting of 100 Gm. of fat in the form of 500 cc. of 20 per cent cream. The plasma cholesterol was then determined on the alternate hours as an indicator of the level of blood lipid, since the quantity of cholesterol in plasma varies fairly consistently with the total amount of blood fat. In normal subjects the plasma cholesterol level remained practically unaltered after the ingestion of the test meal. Similar results were obtained in the untreated thin subjects. When, however, these patients were given insulin, the plasma cholesterol curves were strikingly different; the cholesterol value rose sharply and remained elevated for several hours.

The cholesterol curves obtained in the untreated obese subjects differed markedly from those in the untreated normal and thin individuals. The plasma cholesterol usually showed a prompt rise after the ingestion of the fat meal and remained high for several hours, just as was the case in the insulin-treated, thin patients. When posterior pituitary extract (solution of pituitary, U. S. P.) was given either intranasally or intramuscularly to obese patients, the usual increase in plasma cholesterol did not occur. The value remained virtually unaltered for as long as eight hours. Further data indicating a similar relation between blood lipids and the pituitary were obtained in a group of patients with diabetes insipidus. Following the ingestion of the test meal there was a marked rise in plasma cholesterol, and the level remained high during the entire eight hour period. Also, as in the case of the treated obese subjects, the administration of posterior pituitary extract prevented the rise in the plasma lipid. The foregoing data clearly indicate that the preparations in

1. Blotner, Harry: Blood Fat Tolerance Tests in Malnutrition and Obesity, Arch. Int. Med. **55**: 121 (Jan.) 1935.

question may exert a profound regulatory effect on fat metabolism, insulin promoting an increase in the blood lipid whereas the posterior pituitary extract exerts an inhibitory action.

The possibility that insulin and pituitary extract may be of clinical value in the control of body fat is of immediate interest. At the present time there is considerable evidence [2] that the administration of insulin to thin individuals promotes an increase in body weight. The effect of posterior pituitary extract in reducing body weight is now under investigation.[1] Preliminary studies with six obese patients have shown that the administration of the pituitary preparation intranasally, three times a day, promoted an average weekly loss of from 1½ to 2 pounds. These data are of course too few to permit conclusions regarding the efficacy of posterior pituitary extract in the treatment of obesity. It is necessary to keep in mind the many physiologic changes produced by extracts of the posterior lobe of the pituitary in employing such products clinically. As Geiling [3] has pointed out in the series on glandular physiology and therapy now appearing in THE JOURNAL, striking effects are produced on the cardiovascular and respiratory systems, on the gastro-intestinal tract and on metabolism, in addition to the well known oxytocic action. Thus harmful results might readily obtain from the ill considered use of posterior pituitary extracts, particularly in certain disease states, for instance those involving the circulatory system. Much more work needs to be done under carefully controlled conditions before the indications and contraindications to the employment of these preparations in the treatment of obesity are known. Routine clinical applications are not yet warranted.

2. Nahum, L. H., and Himwich, H. E.: Insulin and Appetite: I. A Method for Increasing Weight in Thin Patients, Am. J. M. Sc. **183:** 608 (May) 1932. Blotner, Harry: The Use of Insulin in Malnutrition, New England J. Med. **211:** 103 (July 19) 1934.

3. Geiling, E. M. K.: The Posterior Hypophysis, J. A. M. A. **104:** 737 (March 2) 1935.

Current Comment

ROSENWALD FUND ANNOUNCES PLAN FOR SOCIALIZATION

The following item from the Chicago *Tribune* of May 20 indicates the plans of the Rosenwald Fund for the coming year:

Trustees of the Julius Rosenwald fund voted yesterday an appropriation of $284,000 to be expended in the fiscal year beginning July 1 for welfare work and rural education among colored persons, and for furthering socialized medicine. Edwin R. Embree, president of the fund, said that the Rosenwald effort to place competent medical service and hospitalization within the reach of persons of moderate means paralleled the program of the medical profession. He quoted Dr. Michael M. Davis of the fund's medical division as reporting that 344 plans to cut the cost of medical care, or to make it easier for the average family to pay for it, had come to his office in the last year. Certain of these projects, he said, had been endorsed in principle by the American College of Surgeons.

The medical profession should be aware of this propaganda in behalf of state medicine. In the crystallization of public opinion, physicians will do well to bring the point of view of the medical profession to the attention of their patients, women's clubs, Rotary clubs, Kiwanis clubs, chambers of commerce and similar organizations.

PNEUMOCONIOSIS

The Bureau of Mines [1] has recently issued a statement reviewing the literature on the effects of breathing dusts, especially silica dusts. Two further reports dealing with prevention and treatment of dust diseases and some of their economic and legal aspects in industry are to appear later. The material in the report is extensive and few general conclusions are drawn. It is fairly safe to infer, however, that the silicotic lung is more susceptible to bacterial infection than the average lung. This is probably due to the irritation of the respiratory tissues by the inhaled dust particles, which weakens the mucous membranes and renders them susceptible to infection. The toxic influence of certain inorganic dusts on the tissues may be a contributing factor. There are almost as many classifications of stages of silicosis as there are studies of the subject. Thus, the Committee on Standard Practices in Compensation of Occupational Diseases of the American Public Health Association describe three arbitrarily divided stages. Pancoast and Pendergrass suggest the following: (1) peribronchial-perivascular-lymph node predominance type, (2) early interstitial predominance, (3) advanced interstitial predominance, (4) nodular predominance and (5) advanced diffuse or terminal fibrosis. A detailed statement of occupation is important in diagnosis. The mere fact that a man is a miner has slight, if any, value. The cardinal physical observation in silicosis is diminished chest expansion. It is generally accepted, however, that the roentgenogram offers the best and most reliable indication of the lung changes that occur in silicosis, particularly in the early stage. Finally it was agreed at the International Congress on Silicosis in 1930 that, to produce the pathologic condition, silica must reach the lungs (1) in a chemically uncombined condition, although the dust inhaled may be either a natural mixture of silicon dioxide with other dusts, such as occurs in granite, or an artificial mixture, such as scouring powder; (2) in fine particles of less than 10 microns in diameter, and (3) in sufficient amount and over a certain period of time, the latter two factors being reciprocal variants. The minimum of these two factors has not yet been determined.

1. Harrington, D., and Davenport, Sara J.: Review of Literature on Effects of Breathing Dusts, with Especial Reference to Silicosis, Information Circular 6835, Department of Interior, Bureau of Mines.

Animal and Vegetable Proteins.—Animal proteins usually contain a more satisfactory assortment of amino acids than those of vegetable origin. The much vaunted gelatin is, however, a glaring exception, since it is devoid of tryptophan and contains at most a trace of tyrosine and cystine. Since none of these amino acids can be formed in the animal's body, gelatin affords a mixture of amino acids that is wholly inadequate.—Newburgh, L. H., and Mackinnon, Frances: The Practice of Dietetics, New York, Macmillan Company, 1934.

Association News

THE ATLANTIC CITY SESSION

Hotel Reservations for Members of the House of Delegates

Tentative reservations for all members of the House of Delegates of the American Medical Association have been made at the Ambassador Hotel in Atlantic City, and each delegate whose name has been made known to the Secretary of the American Medical Association has received a letter concerning this matter. It appears that a number of delegates have not yet made their final reservations. It is important that each member of the House of Delegates who wishes to have accommodations at the Ambassador Hotel should write at once to the hotel management stating the kind of accommodations desired and the time of expected arrival in Atlantic City.

Dinner of Section on Gastro-Enterology and Proctology

The Section on Gastro-Enterology and Proctology of the American Medical Association will hold its annual dinner at the Hotel Shelburne in Atlantic City, Thursday evening, June 13, at 6:30. The cost of the dinner will be $2.50, and tickets may be procured during the meetings of the section Wednesday and Thursday afternoons.

Annual Dinner of Medical Veterans

The dinner of the Medical Veterans of the World War will be held at 7 p. m., Wednesday, June 12, at Kornblau's, Atlantic City. The charge will be $2.50 per plate. Tickets will be on sale at the Central Information and Ticket Bureau of the American Medical Association beginning June 10. Groups desiring to make reservations prior to that date should communicate with the president of the section, Major Albert G. Hulett, 20 Hawthorne Avenue, East Orange, N. J., or the chairman of the local committee of arrangements, Lieut. Comdr. David Allman, 104 St. Charles Place, Atlantic City.

Change in Date for Luncheon

The Phi Delta Epsilon Fraternity luncheon will be held Thursday, June 13, at 12:30 p. m. at the the Ambassador Hotel, Atlantic City. The luncheon had previously been announced for Tuesday, June 11.

Chicago Medical Society Special Train

Dr. Thomas P. Foley, secretary of the Chicago Medical Society, 185 North Wabash Avenue, Chicago, announces that an air conditioned special train, to be known as the Chicago Medical Society Special, will be operated over the Pennsylvania Railroad from Chicago to Atlantic City. This train will leave the Chicago Union Station at 12 noon central standard time, June 9, will leave Fort Wayne, Ind., 2:57 p. m. central standard time, June 9, and will arrive in Atlantic City at 9:15 a. m. eastern standard time, June 10.

The Chicago Medical Society extends an invitation to members of the American Medical Association who are going to Atlantic City to join the Chicago party on this special train. For the trip from Chicago to Atlantic City no extra fare will be charged.

MEDICAL BROADCASTS

Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 central standard time). The next two broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

May 30. Holiday; no broadcast.
June 6. Wound Infections.
June 13. Summer Camps.

National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15, Chicago daylight saving time (3 o'clock central standard time). The next three broadcasts will be as follows:

May 28. Health Frontiers; W. W. Bauer, M.D.
June 4. The Crippled Child; W. W. Bauer, M.D.
June 11. From Philadelphia; speaker and topic to be announced.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Bills Introduced.—H. 360 proposes to grant to physicians and surgeons attending a person during his last illness liens on the proceeds of any policy of insurance on the patient's life, regardless of who may be the named beneficiary of such insurance. H. 368, to amend the workmen's compensation act, proposes, among other things, to require an employer to furnish medical and surgical treatment to a worker disabled in an industrial accident, during the first ninety days (rather than sixty days) of disability and to raise the employer's liability for such services to $300, rather than $100 as the present law provides.

CALIFORNIA

Bill Introduced.—A. 2441 proposes to prohibit the sale of dinitrophenol or thyroid and compounds, preparations or derivatives thereof, including all such substances as are or may hereafter be trademarked, patented or copyrighted and proprietary medicines, except on the written prescription of a licensed physician or "osteopathic physician duly licensed under the state medical practice act."

Compulsory Health Insurance Is Dead.—According to the San Francisco *Examiner*, May 18, the issue of compulsory public health insurance in California is dead, at least until 1937, as far as the state legislature is concerned. On petition of thirty-eight of the forty members of the senate, a resolution was passed, May 17, to create an interim committee to study further the question of health insurance and to report at the 1937 session. On this committee have been appointed Senators Tickle, Williams, Difani, Pierovich and Knowland, the first three of whom were members of the 1933-1935 committee, which filed an exhaustive report on health insurance. The new committee will be empowered to accept donations from private sources to continue the inquiry, but the bill introduced in the senate creating a state organization to carry on for health insurance will not be pressed.

FLORIDA

Annual Short Course.—The third annual short course for physicians will be conducted at the University of Florida, June 24-29, under the auspices of the general extension division and the Florida Medical Association. Included among those directing the course will be:

Dr. Fred L. Adair, Chicago, professor of obstetrics and gynecology, University of Chicago.
Dr. Oscar W. Bethea, New Orleans, professor of clinical medicine, Tulane University of Louisiana School of Medicine.
Dr. Horton R. Casparis, Nashville, professor of pediatrics, Vanderbilt University School of Medicine.
Dr. Emil Novak, Baltimore, associate professor of obstetrics, University of Maryland School of Medicine.
Dr. Willis C. Campbell, Memphis, professor of orthopedic surgery, University of Tennessee School of Medicine.
Dr. Arthur M. Shipley, Baltimore, professor of surgery, University of Maryland School of Medicine, and associate professor of surgery, Johns Hopkins University School of Medicine.
Dr. Oliver C. Wenger, Hot Springs National Park, surgeon, U. S. Public Health Service.

ILLINOIS

Motor Accidents Increase.—The state health department announces a total of 2,572 deaths from motor vehicle accidents in 1934, the highest annual number in the history of the state. The mortality rate was 32.6 per thousand of population as compared with 29.5 in 1930, the previous high record. Collision with other motor vehicles and with fixed objects such as telephone poles and bridge abutments accounted for the great-

est proportionate increases in fatal accidents last year. The department reports that running down pedestrians accounted for almost half the fatal accidents, a total of 1,249.

Chicago

Personal.—Floyd S. Markham and Sion W. Holley, students in the Division of Biological Sciences, University of Chicago, have been awarded the Howard Taylor Ricketts Prize, which is given annually for the best results in research in either pathology or hygiene and bacteriology.

Rockefeller Gift to Psychiatry Department.—The University of Chicago has received a gift of $243,000 from the Rockefeller Foundation, of which $168,000 will be used to establish a department of psychiatry in the medical school for research into the causes and cure of mental diseases. It is planned to open the new department, July 1. The remaining $75,000 will be used to aid the university's research in the humanities.

INDIANA

Chiropractors' Health Certificates Not Acceptable.—City health officers are not required to accept health certificates signed by chiropractors, according to an opinion handed down by the attorney general of Indiana recently. The opinion was written in connection with the recent refusal of Dr. Herschel G. Cole, Hammond, to accept certificates signed by Holloway Ford, a chiropractor. Dr. Cole, secretary of the health board of Hammond, refused to accept two certificates attesting the health of two persons asking permission to handle food, according to the *Journal of the Indiana State Medical Association*. The opinion points out that a licensed chiropractor is limited to practice in his profession, as a drugless physician, and that a health certificate, to be recognized as such, should bear the signature of one authorized to diagnose human ills generally.

Annual Graduate Meeting.—The fourth annual graduate educational meeting of the Indiana State Medical Association was a joint session with the First District Medical Society at the Elks' Home, Evansville, May 8. Speakers on the program included:

Rolla N. Harger, Ph.D., Indianapolis, New Developments in Vitamins.
Dr. Ernest O. Asher, New Augusta, Obstetrics in the Home.
Dr. Paul D. Crimm, Evansville, Newer Methods in Diagnosis and Treatment of Pulmonary Tuberculosis.
Dr. Everett E. Padgett, Indianapolis, Diagnosis and Surgical Management of Gallbladder Disease.
Dr. Clyde G. Culbertson, Indianapolis, Rôle of the Clinical Pathologist as a Consultant to the General Practitioner.
Dr. Maurice V. Kahler, Indianapolis, Female Sex Hormones.
Dr. Beaumont S. Cornell, Fort Wayne, Diseases of the Colon.
Dr. Nelson K. Forster, Hammond, Emergency Surgical Treatment.
Dr. John H. Warvel, Indianapolis, Diabetes.
Dr. Roscoe L. Sensenich, South Bend, The Medical Economic Picture Up-to-Date.
Dr. Louis H. Segar, Indianapolis, Common Sense in the Care of Children.

MARYLAND

State Society Benefits by Physician's Will.—The Medical and Chirurgical Faculty of the State of Maryland will eventually receive the bulk of the estate of Dr. John Ruhräh, according to the terms of his will, it is reported. The faculty may have immediately whatever books it desires from the physician's library but will receive the remainder of the legacy on the death of Dr. Ruhräh's survivors. When this takes place, the Ruhräh Fund for the Benefit of the Library will be created, its use to be governed by provisions in the will.

Conference of Health Officers and Boards of Health.—The fifteenth annual conference of health officers and boards of health of Maryland will be held at Johns Hopkins University School of Hygiene and Public Health, May 31-June 1. The tentative program includes the following speakers:

Dr. Reginald M. Atwater, executive secretary, American Public Health Association, Team Work in the County Health Unit.
Dr. Henry D. Chadwick, commissioner of health of Massachusetts, Tuberculosis Program in Massachusetts.
Dr. Stanley H. Osborn, commissioner of health of Connecticut, Occupational Diseases.
Dr. George C. Ruhland, commissioner of health of the District of Columbia, Measles Control.
Dr. William A. McIntosh, Rockefeller Foundation, New York, General Policies in the Field of County Health Administration.

The governor of Maryland, Harry W. Nice, will be on the program.

MASSACHUSETTS

Hospital News.—The Forest Hills Hospital recently opened an outpatient department with Dr. Alonzo J. Shadman as managing director.——Dr. Archibald McK. Fraser has been appointed surgeon in chief of the first surgical service, and Dr. Howard M. Clute, of the second surgical service at Carney Hospital, Boston. Dr. Fred B. Lund, surgeon in chief for the past nine years, is now consulting surgeon.——The Hospital Council of Boston was recently organized with Dr. Joseph B. Howland, superintendent of Peter Bent Brigham Hospital, as president and Dr. Charles F. Wilinsky, superintendent of Beth Israel Hospital, secretary. Twenty-four hospitals are members.

Dr. Mallory Receives the Gold Headed Cane.—At the annual meeting of the American Association of Pathologists and Bacteriologists, April 17, it was voted to confer a gold headed cane on Dr. Frank Burr Mallory, emeritus professor of pathology, Harvard Medical School, Boston. Before his death in 1922, Dr. Harold C. Ernst, who had for years been secretary of the association, turned over to it this cane to serve as a symbol of tribute by the association to distinguished pathologists. According to Dr. Howard T. Karsner, Cleveland, now secretary of the organization, the cane has been held by Drs. William H. Welch and Theobald Smith.

MICHIGAN

Personal.—Dr. Robert G. White, Detroit, has been appointed school physician in Ann Arbor, succeeding Dr. Earl E. Kleinschmidt, resigned after three years' service.——Dr. Wellington B. Huntley, Hudson, has been appointed head of the medical staff of the Michigan State Prison Hospital, Jackson, succeeding Dr. John W. Speck.——Dr. Francis A. Hargrave, who has completed fifty years in practice in Palo, was recently honored at dinner in recognition of his seventy-eighth birthday.

Health Council Created.—The Health Council of Metropolitan Detroit has been organized with Dr. Hugo A. Freund as permanent chairman. The council, which was unanimously endorsed at a meeting of the Wayne County Medical Society in December (THE JOURNAL, February 9, p. 482), held its first meeting, April 4. The twenty-four members of the council are representatives of the various health agencies in the city. It proposes to procure health service for all the people at a minimum of expense and will seek to reach a common ground of understanding between medical and social groups devoted to the care of the sick as well as to harmonize views of all groups interested in health problems.

NEBRASKA

Hospital Anniversary Clinics.—The Lincoln General Hospital celebrated its tenth anniversary in April with a two day program of clinics attended by about 250 physicians. Guest speakers and clinicians were Drs. John H. Musser, New Orleans, who held a medical clinic; Fred H. Albee, New York, who spoke on surgery of the bones and joints; Noble Sproat Heaney, Chicago, obstetric conditions, and Gioacchino Failla, Sc.D., New York, therapeutic use of high voltage roentgen rays.

Society News.—Dr. Albert C. Furstenberg, Ann Arbor, Mich., addressed the Omaha-Douglas County Medical Society, April 17, on "Acute Infections of the Face and Neck."—Dr. Edward C. Rosenow, Rochester, Minn., addressed the Lincoln District Medical Society and the Lancaster County Medical Society, March 4, on infections centralized in the nose, throat and teeth.——A symposium on anemias was a part of the program of the Third Councilor District Medical Society at Falls City, April 18, presented by Drs. James P. Tollman, Archibald R. McIntyre, Howard B. Hamilton and John B. Potts, all of the faculty of the University of Nebraska College of Medicine, Omaha.——Drs. Arthur E. Hertzler and George A. Westfall, Halstead, Kan., addressed the Southwestern Nebraska Medical Society, McCook, April 11, on gastroduodenal ulcers and other gastro-enterologic subjects.

NEW HAMPSHIRE

State Medical Election.—Officers elected at the recent annual meeting of the New Hampshire Medical Society are Drs. Clifton S. Abbott, Laconia, president; Frank E. Kittredge, Nashua, vice president, and Carleton R. Metcalf, Concord, secretary-treasurer. The next annual meeting of the association will be held in Manchester, May 12-13, 1936.

NEW YORK

Dr. Fronczak Honored.—Dr. Francis E. Fronczak, Buffalo, was honored at a reception given by friends and associates at the Lafayette Hotel, March 27, on his completion of twenty-five years as health commissioner of the city. Polish-American citizens presented to him a brief case and his fellow workers a watch. Dr. Fronczak is a native of Buffalo and a graduate of the University of Buffalo School of Medicine, class of 1897. He entered the department of health in 1907 as assistant commissioner and was made commissioner in 1910. During the World War he served overseas and was decorated by Poland

with the Order of Polonia Restituta and the Cross of Valor of Poland for his service with the army and as a member of a relief mission. He also received the cross of the Legion of Honor of France.

Health at Albany. — Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended May 11, indicate that the highest mortality rate (21.3) appears for Albany and for the group of cities as a whole, 12. The mortality rate for the corresponding period last year was 11.9 for Albany and 11.8 for the group of cities. The annual rate for eighty-six cities for the nineteen weeks of 1935 was 12.6 as against a rate of 12.5 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

New York City

League to Abate Noise.—With the organization of the League for Less Noise, May 16, the efforts of several agencies in New York will be coordinated to reduce the noise of the city. The new league includes the recently formed League for Noise Abatement and will have its headquarters at 580 Fifth Avenue. Included among the representatives of civic, business and science leaders at the meeting were those of the police and health departments and the New York Academy of Medicine. E. H. Peabody, president of the Peabody Engineering Corporation, who was chairman of the conference meeting, was unanimously elected president. Speakers at the meeting included Drs. Shirley Wynne, former health commissioner, E. H. Lewinski-Corwin, Ph.D., and John Oberwager.

Public Exhibit of Cancer Facilities.—The New York City Cancer Committee sponsored an exhibit to show the facilities available in New York for the diagnosis and treatment of cancer and for the care of the needy cancer patient, at the Hotel Plaza, May 14-20. A number of hospitals participated, including Bellevue Hospital and the division of cancer of the department of hospitals, Lenox Hill, Mount Sinai, Montefiore, New York, Presbyterian, Roosevelt, Fifth Avenue, St. Vincent's, Sloane, Woman's and St. Luke's hospitals; Memorial Hospital for Treatment of Cancer and Allied Diseases, and New York Skin and Cancer Unit of New York Post-Graduate Hospital. Various organizations for cancer control and several social agencies also took part. At a luncheon at the Plaza May 15, Prof. Stephen Leacock, McGill University, Montreal, spoke on "The Conquest of Disease"; Dr. John A. Hartwell, "How New York Is Meeting the Cancer Problem," and Mr. W. Kingsland Macy, "The Lay Person's Share in the Cancer Campaign."

New Regulations for Private Hospitals.—The department of hospitals of New York issued new regulations to provide stricter control of private hospitals and sanatoriums, April 22, following a study made jointly by the department and the coordinating committee of the five county medical societies. Under the new rules each proprietary hospital must be supervised by a medical board including an internist, a surgeon, an obstetrician if maternity service is offered, and a pathologist. This board is to make yearly inspections and is to be responsible for the maintenance of proper professional and ethical standards. Each hospital must have a resident physician, and at least one graduate nurse must be present at all times. Payment of commissions, bonuses or gratuities in any form to any physician or to any organization directly or indirectly is forbidden. All hospitals must be licensed for a definite number of beds and, if the number is changed, an amended application must be filed. Other rules concern compliance with fire and sanitary laws, isolation rooms for communicable diseases, laboratories for all hospitals with capacities over thirty beds, x-ray apparatus and annual statistical reports. The department will not recognize as hospitals any establishments occupying sections of hotel or multiple dwellings.

OHIO

Bill Introduced.—S. 344 proposes to levy a tax of 3 per cent on charges made for professional services. The bill proposes that "the tax hereby imposed shall apply and be collected when the service is rendered, regardless of the time when the agreement therefor is made, or when the price is paid or delivered."

Executive Secretary Appointed. — Mr. Charles Nelson, since 1928 assistant to Don K. Martin as executive secretary of the Ohio State Medical Association, has been made executive secretary to succeed Mr. Martin. Mr. Nelson is a native of Marion and was engaged in newspaper work before he entered the office of the state society. Mr. Martin resigned recently to become executive secretary of the Ohio Manufacturers Association.

Society News.—At a meeting of the Hempstead Academy of Medicine at Portsmouth, April 8, Dr. Gordon F. McKim, Cincinnati, spoke on "Differential Diagnosis of Prostatic Conditions."——Weston A. Price, D.D.S., Cleveland, addressed a combined meeting of the Columbus Academy of Medicine and the Columbus Dental Society, April 15, on "Studies Among Primitive Races for Light on Why Modern Civilization Hastens Physical Degeneration."——Four Detroit physicians presented the following program of the Summit County Medical Society, Akron, at its meeting May 15: Drs. Frederick L. Sperry, "Chronic Irritable Colon"; John A. Maloney, "Psychogenic Concepts of Migraine"; Silas W. Wallace, "Focal Infections in Relation to Systemic Diseases: Complement Fixation as a Diagnostic Aid," and Howard C. Walser, "Asphyxia Neonatorum."——The Union Medical Association of the sixth councilor district met in Canton, April 10, with addresses on acute conditions of the ear, nose and throat presented by Drs. James R. Dowling, Massillon; James E. Springer, Akron; George L. King, Alliance; William H. Evans, Youngstown; John N. Hoffmann, Canton, and Edward W. Douglas, Wooster. ——At a meeting of the Adams County Medical Society, West Union, April 17, Dr. Clifford G. Foor, Hillsboro, discussed diseases of the stomach and duodenum and Dr. Samuel C. Clark, Cherry Fork, mumps.——Dr. Louis J. Karnosh, Cleveland, addressed the Lorain County Medical Society, April 9, on "The History of Neuropsychiatry."——Dr. Kenneth F. Lowry, Troy, addressed the Miami County Medical Society, Piqua, April 5, on "Postoperative Care of Surgical Patients."——Dr. Stanley S. Sidenberg, Cleveland, addressed the Marion Academy of Medicine, Marion, on treatment of tuberculosis by pneumothorax.——Dr. Thomas R. Brown, Baltimore, delivered the annual Alpha Omega Alpha lecture of the Cincinnati Academy of Medicine, May 20, on "Problems in the Digestive Field."

OREGON

Fiftieth Anniversary. — The Multnomah County Medical Society entertained Dr. and Mrs. Edward Allen Pierce, Portland, at dinner at the Multnomah Hotel, April 15, to celebrate Dr. Pierce's fiftieth anniversary in the practice of medicine. Dr. Pierce was president of the Oregon State Medical Society in 1909-1910 and was a member of the state board of health for many years.

Society News.—Drs. Richard F. Berg and Thomas D. Robertson, Portland, addressed the Multnomah County Medical Society, April 3, on pathology of the knee joint and examples of clinicopathologic correlation. Speakers April 17 were Drs. Merle W. Moore, on "Points to Consider in Diagnosis of Gastro-Intestinal Allergy," and Warren C. Hunter, "Clinical and Pathologic Correlation of Dissecting Aortic Aneurysm."

PENNSYLVANIA

Cancer Meeting at Meadville.—The Cancer Commission of the Medical Society of the State of Pennsylvania held its annual western sectional meeting at Meadville, May 15. Dr. George E. Pfahler, Philadelphia, chairman of the commission, made an address on "Diagnosis and Treatment of Cancer of the Bladder by Means of X-Rays" and the following New York physicians spoke: Drs. Ralph E. Herendeen, "Treatment of Bone Tumors"; Hayes E. Martin, "Diagnosis and Treatment of Intraoral Cancer," and Frank E. Adair, "Diagnosis and Treatment of Breast Lesions." Dr. Harry C. Winslow, Meadville, was chairman.

Philadelphia

Society News.—The Philadelphia County Medical Society presented a program on cancer, April 24, with the following speakers: Drs. Frank E. Adair, New York, on "The Attitude of the Modern Surgeon Toward Cancer Therapy"; George P. Muller, "Diagnosis of Tumors Within the Chest"; Thomas Grier Miller, "Nonspecific Management of the Cancer Patient," and Stanley P. Reimann, "Current Events in Cancer Research."

Seminars on Infections.—The current series of graduate seminars presented by the Philadelphia County Medical Society on Friday afternoons is made up of the following:

May 10, Drs. Frank B. Lynch Jr., Pneumonia from the Laboratory Angle; Hobart A. Reimann, Minneapolis, from the Clinical Angle.
May 17, Dr. William Bates, Minor Surgical Infections as Seen in the Office of the General Practitioner.
May 24, Drs. William P. Belk, Ardmore, Pa., Infections of the Kidney and Prostate from the Laboratory Angle; Leon Herman, from the Clinical Angle.
May 31, Dr. Clifford B. Lull, Infections of the Cervix as Seen in the Office of the General Practitioner.

RHODE ISLAND

Society News.—Dr. Walter C. H. Weigner, Providence, addressed the Washington County Medical Society, Westerly, April 10, on "Functional Factors in Disease."——Dr. Gilbert Horrax, Boston, made an address at the State Hospital for Mental Diseases, Howard, March 19, on "Neurosurgical Conditions of Interest to Psychiatrists."—The Providence Medical Association held a joint meeting with the New England Pediatric Society, May 6, at which the following papers were presented: Drs. Dennett L. Richardson, "Immunization Against Measles"; Maurice Adelman, "Purpura as a Complication of Scarlet Fever," and Murray S. Danforth, "Review of Cases of Legg-Calvé-Perthes Disease."

SOUTH DAKOTA

Personal.—Dr. Raymond P. Frink, Wagner, has been appointed agency physician for the Yankton Indian Reservation, as successor to Dr. Andrew Rittan.——Dr. August E. Bostrom, De Smet, has resumed private practice after several years as epidemiologist of the state board of health and more recently with the Indian Medical Service.——Dr. Emil G. Ericksen has been appointed health officer of Sioux Falls.——Dr. Burt A. Dyar, De Smet, has been appointed by the state relief administration to make a survey of tuberculosis and other contagious diseases among the adult indigent.

State Society's Radio Program.—Since December 1934 the South Dakota State Medical Association has sponsored a radio program Sunday evenings from 6:45 to 7 o'clock over Station WNAX, Yankton. District societies are responsible for a month's broadcast in turn. A committee of the state association with the following members is in charge of the general plan: Drs. Silas M. Hohf, Yankton; Edward W. Jones, Mitchell; Edwin L. Perkins, Sioux Falls, and John F. D. Cook, Langford, secretary of the state association. This committee passes on all papers, requiring that they be submitted sixty days before the broadcast date. In addition, there is an editorial board consisting of the councilor, president and secretary of each district. Mimeographed copies of the papers may be obtained from Dr. Cook. Dr. Robert A. Buchanan, Huron, broadcast, May 19, on "Breast Feeding in Infants."

WASHINGTON

Personal.—Dr. Lunsford D. Fricks, for the past eight years district director in Seattle for the U. S. Public Health Service, was transferred to Honolulu as chief quarantine officer, March 1.

Society News.—Dr. Maurice F. Dwyer addressed the King County Medical Society, Seattle, May 6, on cancer of the uterus.——Drs. John F. LeCocq and Glenn N. Rotton, Seattle, addressed the Chelan County Medical Society, April 3, on "Perthe's Disease and Allied Conditions" and "Breech Delivery," respectively.——Dr. Albert J. Bowles, Seattle, addressed a joint meeting of the Skagit County Medical Society and the Mount Baker District Dental Society, Mount Vernon, April 2, on "Hypoparathyroidism and Calcium Metabolism."

WISCONSIN

Bills Introduced.—S. 401 proposes to authorize the establishment in Madison of a hospital for the observation, diagnosis and treatment of the sick, and particularly of persons afflicted with mental diseases, to be operated in connection with and under the direction and supervision of the medical department of the University of Wisconsin. The bill also proposes that every physician on the staff of any county hospital for the insane is to devote at least two weeks in each year to psychiatry work in this hospital. A. 948 proposes that "any one practicing chiropractic who shall fail to perform or who shall negligently or unskilfully perform or attempt to perform any duty assumed which is ordinarily performed by authorized practitioners shall be liable to the penalties and liabilities for malpractice." A. 909 proposes to provide that an injured person having a claim or a right of action on account of his injuries may assign to the hospital treating him such part of any recovery had or to which he is entitled, sufficient in amount to cover the cost of his hospital care. A. 933 proposes to require a physician who has attended or examined an injured workman at the request of the employer or of his insurance carrier to give to the worker, or if he is deceased to his personal representative, a copy of each report he makes to the employer or insurance carrier. However, in cases in which the giving of such a report to the worker would be deemed inimical to the interests of the employer, a copy of the report must be filed with the industrial commission. If any physician fails to make the reports required by this bill, his testimony is not to be received in evidence by the industrial commission.

GENERAL

Medical Bills in Congress.—*Changes in Status:* S. 2472 has been reported to the Senate, proposing to authorize an annuity to Frances Agramonte, the widow of Dr. Aristides Agramonte, member of the yellow fever commission. H. J. Res. 249 has passed the House, providing for participation by the United States in the Eighth International Congress of Military Medicine and Pharmacy to be held at Brussels, Belgium, in 1935.

Society News.—The annual meeting of the American Association of Industrial Physicians and Surgeons will be held in Philadelphia, June 10-11, at the Hotel Pennsylvania.——The American Neisserian Medical Society will meet in annual session at the Claridge Hotel, Atlantic City, June 11.——The University of Minnesota and Mayo Foundation Alumni dinner will be held at the Ambassador Hotel, June 12.——The Society of Plastic and Reconstructive Surgery will meet in Atlantic City at the Chalfonte-Haddon Hall Hotel, June 14-15.

Changes in Status of Licensure.—At a meeting of the California Board of Medical Examiners recently, the following action was taken:

Dr. Hovsep Hagop Mahdesian, Fresno, placed on probation for two years, without narcotic privileges or possession.

Dr. Edward Peter Genochio, San Francisco, found guilty of violation of the terms of the medical practice act concerning advertising, was placed on probation for three years.

The North Carolina Board of Medical Examiners recently reported the following:

Dr. John Harvey Hudson, Greenville, license restored Dec. 3, 1934; it was revoked July 15, 1929.

National Tuberculosis Association.—The thirty-first annual meeting of the National Tuberculosis Association will be held in Saranac Lake, N. Y., June 24-27, under the presidency of Dr. Henry Kennon Dunham, Cincinnati. The preliminary program announces, among other features, a group of papers on pneumothorax treatment to be presented by Drs. John Alexander, Ann Arbor, Mich., Richard H. Morgan, Detroit, Hugh B. Campbell, Norwich, Conn., George C. Turner, Chicago; Dean B. Cole and Edgar C. Harper, Richmond, Va., and Philip B. Matz, Washington, D. C. At the opening general meeting there will be special tributes to Dr. Edward L. Trudeau, founder of Saranac Lake Sanitarium fifty years ago, presented by Drs. Allen K. Krause, Tucson, Ariz.; Charles C. Trembley, Saranac Lake, N. Y., and Harry A. Pattison, Livingston, N. Y.

Broadcasting Company Prohibits Certain Advertising Programs.—The Columbia Broadcasting System has announced certain new policies which among other things will exclude the advertising of laxatives, deodorants and depilatories. Restrictions have also been placed on the amount of advertising on the air, effective July 30. After 6 p. m. the advertising will be held to 10 per cent of the total scheduled time, while the day-time programs will be restricted to 15 per cent. The new rules provide that no new laxative or other products "describing graphically or repellently any internal bodily function or matters not generally acceptable topics in social groups" will be accepted and that accounts in this category will all be removed from the air by March 1, 1936. Contracts of this type expiring in the meantime will not be renewed. The Columbia Broadcasting System is engaging the services of an "eminent child-psychologist, who will have the benefit of an advisory board of qualified members with the special purpose of pointing the way toward programs designed to meet the approval of parents, children and educators."

Winners in Health Conservation Contests.—The United States Chamber of Commerce at its annual meeting in Washington, D. C., April 29, announced the winners in the sixth annual city and the first rural health conservation contests. For the second consecutive year, Baltimore was the winner in the class of cities with populations over 500,000. In the five other population groups winners were: between 250,000 and 500,000, Newark, N. J.; between 100,000 and 250,000, Honolulu, Hawaii; between 50,000 and 100,000, Pasadena, Calif.; between 20,000 and 50,000, Hackensack, N. J., and under 20,000, Palo Alto, Calif. Special awards were given to Detroit, Milwaukee, Brookline, Mass., New Haven, Conn., and Syracuse, N. Y., all of which have twice won the award in their respective groups and were therefore excluded from the contest. In six geographic divisions the rural awards were as follows: northeastern, Cattaraugus and Westchester counties, New York; eastern, Kent County, Maryland; southeastern, Glynn County, Georgia; north central, Woodbury County, Iowa; south central, El Paso County, Texas, and western, San Joaquin health district, California. This contest is conducted in cooperation with the American Public Health Association.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 27, 1935.

Collapse of the Osteopaths' Attempt to Obtain Registration

At the tenth sitting of the committee of the house of lords on the bill for the registration of osteopaths, a volume was handed in which had been prepared in eight days by Dr. W. K. Macdonald (a qualified physician who is also an osteopath) entitled "The Scientific Basis of Osteopathy." It embodied the seven "Bulletins of the A. T. Still Research Institute," which figured in the previous evidence, and contributions selected from the *Journal of the American Osteopathic Association.* It was a response to Lord Dawson's invitation to produce any scientific basis available. Sir Morton Smart, late medical officer in charge of the electrical department of the Hospital for Sick Children, Great Ormond Street, was the last witness called by the British Medical Association. He said that he had a large practice in manipulative surgery, which was valuable in certain cases but should be based on a wide knowledge of anatomy and pathology and preceded by skilled diagnosis. In certain cases it could do great harm. He had studied the literature of osteopathy and found no scientific evidence for the theory. Both in America and in this country osteopaths, while trying to adhere to the theory of Still, had ventured far from it and now used practically every method known to scientific medicine. They therefore realized that this theory cannot account for the causation of diseases. It was not in the public interest to give registration to a group of practitioners who based their practice on an unsound theory. If given, the corollary was that the medicine of all civilized countries should be prohibited, and it would be impossible to deny it to other cults, such as chiropractors, nature curers and Christian scientists.

Prof. G. E. Gask, director of the surgical unit at St. Bartholomew's Hospital, said that he had never been able to find anything which could be called an osteopathic lesion, though since he had been called to the inquiry he had gone back to the wards and looked for it. Sir Norman Walker, president of the general medical council, presented a memorandum of evidence on behalf of that body. It could not find in the bill any definition of the scope of osteopathy or of the nature of that which was to be practiced. Its effect would be to exclude physicians from a field of practice which they possessed. On the other hand, the medical acts contained nothing to prevent a physician from adopting any theory of medicine or surgery, including osteopathy. Sir Arthur Robinson, secretary to the ministry of health, presented a memorandum on behalf of the minister, who held that there should be included in the statute a definition of osteopathy distinguishing it without possibility of mistake from other forms of practice. Unless this could be done, proper administration of the register would be impossible. It appeared to him that a sufficiently strong case had not been made out for the bill and that the proper action was to set on foot a scientific inquiry into the principles and practice of osteopathy. Mr. S. P. Vivian, registrar general, presented a memorandum on the importance of certificates of death. Unless the new class of practitioners were as fully equipped as the present class of registered physicians, their admission would prejudice the important public interests served by certificates of death both to public safety and to medical statistics. He would regard any osteopathic evidence as to the cause of death as lay evidence. Mr. R. C. Elmslie, surgeon in charge of the orthopedic department of St. Bartholomew's Hospital and a member of the council of the Royal College of Surgeons, gave evidence on behalf of that body. He said that the education of the majority of those whose names would be placed on the register was not of a character which entitled them to be officially recognized and it would be impossible within any reasonable time to establish a system of education of osteopaths in any way comparable to that of the medical student. Risks were attached to manipulate treatment carried out by osteopaths who had not had an adequate training in diagnosis, and the theory of osteopathy was based on the presence of spinal lesions that had not been proved to exist.

The mass of expert evidence against the bill proved too much for the osteopaths. Their lawyer said that the medical profession had raised the issue that before a register was granted the osteopaths must produce scientific justification of their theory. He could not resist that issue, and the committee was asked to make a finding on a matter that was beyond it. Moreover, Dr. Macdonald had said that he was not satisfied with the standard of the British School of Osteopathy. His clients therefore felt that they could not ask for that particular bill. But it should not be thought that they had lost any faith in their theories and they welcomed inquiry. A voluntary register of osteopaths would immediately be formed and as soon as possible a school qualified to give proper training would be constituted. The lawyer representing the Royal Colleges of Surgeons said that he was prepared to bring forward evidence severely commenting on the A. T. Still bulletins and other documents put in by the osteopaths. The committee decided to hear two further witnesses. Dr. H. K. Graham, university teacher of radiology, said that the roentgenograms which had been put in to demonstrate osteopathic lesions were merely examples of adolescent curvature of the spine. He had submitted the statement made by Dr. Macdonald that local edema and fibrosis could be shown in roentgenograms to experimental test and found it to be wrong. Sir Henry Dale, F.R.S., director of the National Institute of Medical Research, said that the bulletins of the A. T. Still Institute submitted were of no scientific value. They were not attempts to discover the meaning of the suggested relation between particular spinal lesions and particular physiologic facts, which might be valuable, but were attempts to provide evidence for a theory already accepted. He did not think that the evidence tendered in "The Scientific Basis of Osteopathy" would justify the expenditure of public money on an investigation.

Thus after twelve sittings of the select committee of the house of lords, held over a period of nearly six weeks, this attempt of the osteopaths collapsed. Their success in getting so far with their bill was due to the credulity always shown by a section of the British public for the claims of irregular practitioners. As the majority for the second reading of the bill in the house of lords shows, this section includes persons high in the social scale, who indeed seem to be the most amenable to quackery. The vaunted "cures" ascribed to osteopathy seem to them most convincing. Success with the public engendered in the osteopaths an overweening conceit, manifested by this attempt to obtain a status similar to that of physicians, claiming that their fantastic theory was the key to the treatment of all disease—a claim which, however, broke down on cross examination. But it was the absence of any scientific basis for their theory that proved fatal. This point was driven home by the evidence of eminent witnesses, many of whom were engaged in purely scientific work or were high officials and were therefore not in practice and so were not open to the taunt of self interest. Thus the temporary success of the osteopaths only ended in discredit.

Anesthetic Explosions

At the Section of Anesthetics of the Royal Society of Medicine, an anesthetist, Dr. Ironside, described an explosion that took place in a hospital. The anesthetic trolley had been it

use for two and one-half hours, with oxygen passing over ether. While it was being wheeled out of the operating theater into the anesthetic room a violent explosion occurred. The ether container broke into small pieces, and two bottles of ether on the other side of the room exploded. The theater attendant was knocked down, a sister was blown over, the patient fell off the trolley, and the whole room was a sheet of flame. The fire department was called and soon extinguished the fire. The floors and corridors of the hospital were laid with rubber, those of the anesthetic room and operating theater with granolithic flooring. The air in these two rooms was changed every ten minutes by a special apparatus supplying filtered air. The sterilizers were steamless, and the whole atmosphere was very dry. Nurses had complained of sparks from the trolleys carrying food or patients. The trolleys were insulated by rubber wheels. The anesthetic table was also on rubber wheels. A government expert put forward the theory that the explosion was caused by the oxygen passing through a metal tube to the ether container or by a spark from the patients' trolley. He also suggested that by bad luck the anesthetist had attained in the container the highest explosive mixture of ether and oxygen, 75 per cent of oxygen and 5 of ether. An important factor was a static charge of electricity when inflammable volatile substances were present. A discharge occurred when there was not sufficient moisture in the air to bring about earthing. Explosions appeared to be due to dust particles or droplets of liquid in the path of the electric current, which allowed discharge to take place. A source of discharge might be the rubbing of the covering of the gas bag on the rubber of the bag itself. To prevent such accidents the humidity of the air of the operating room should be increased and proper earthing should be secured to reduce the static risk. If the relative humidity of the room at 70 F. was 55 there was no guaranty against a static discharge.

Prof. G. I. Finch dealt with ignition of explosive mixtures by discharge of static electricity, or by low tension arc discharges, such as could arise from rupture of an illuminating circuit. Explosion limits varied greatly according to the combustible and the supporting medium, whether air, oxygen or nitrous oxide. In the case of methane and air the explosive limits were between 5 and 14 per cent; of methane and oxygen, from 5 to 60 per cent. Little was known of the limits for nitrous oxide, but this gas was a more generous supporter of combustion than oxygen. Though under normal conditions ether-air mixtures were explosive only in the range of 1.5 to 7.5 per cent, mixtures of ether in air could propagate a cool flame, which traveled slowly and would not be detected except in a darkened room but was quite capable of producing an explosion. Although the nitrous oxide mixture for anesthesia was outside the explosion limit, it was impossible in practice to avoid subsequent dilution with air, which rendered the mixture explosive. Static discharges could be prevented by ensuring that all bodies which could come in contact with each other should be of equal potential. In an operating theater this called for efficient earthing of people, objects and controls.

The Prevention of Automobile Accidents

The latest measure for the prevention of automobile accidents is a speed limit of 30 miles an hour in built-up areas. At one time there was a general speed limit, but this was abolished and speed was punishable only when it could be shown to constitute dangerous driving. Red circular signs with the figure 30 marked on them have been set up on all the roads showing motorists when they enter the area in which their speed is limited. The exits from these areas are indicated by a circular sign showing a black bar drawn across a white background.

PARIS

(From Our Regular Correspondent)

April 19, 1935.

The Causes of Mortality in France—Syphilis, Tuberculosis, Alcoholism

An active discussion on the causes of mortality in France has been taking place at recent meetings of the Academy of Medicine. Roubakaine, a former expert in the section on hygiene, tried to show that the depopulation of France as claimed by some is a deception. Richet attacked the accuracy of the statistics quoted by Roubakaine as to the increase of deaths over births, and Rist, a well known authority, disputed the statements of Roubakaine as to the tuberculosis figures. Roubakaine maintained that the decrease in the number of births in France is a myth. In 1933 the birth rate in the principal countries of Europe was, per thousand inhabitants, Sweden 13.7, England 14.4, Germany 14.7, Belgium 16.5, Switzerland 16.5 and France 16.4.

In proportion to the number of inhabitants, the excess of births over deaths is lowest in Germany and next lowest in France.

With a population almost equal to that of Great Britain and Italy, the number of deaths in France greatly exceeds that of these other two countries; hence the apparent decrease in population.

The mortality during 1933 in France, 15.8 per thousand inhabitants, is relatively high as compared to that of Germany 11.2, Great Britain 12.3, Italy 14.0, Belgium 13.1, Switzerland 11.4, Holland 8.6, and Sweden 11.2. The only European countries having a higher mortality than France are Spain, Portugal and Rumania. These figures show that the cause of the relatively slight increase of population in France is not due to the decreased number of births but rather to the relatively high number of deaths as compared to other European countries. The number of births depends more on social and economic conditions, according to Roubakaine, than on any amount of governmental encouragement. Medical and sanitary organization alone cannot act in decreasing mortality, because this depends almost exclusively on the social and economic conditions of the masses, which dominate human biology. When one analyzes the causes of death in France, the most frequent cause is cardiovascular disease, which necessarily directs attention toward the incidence of syphilis. This disease affects from 8 to 10 per cent of the population in France. The syphilologist Fournier estimated it as high as 30 per cent. This calls for such measures as suppression of prostitution and its ulterior causes, such as unemployment, misery and white slavery. The number of deaths from tuberculosis is higher in France (1,516 per million inhabitants) than in any country of Europe except Finland. The infantile mortality, however, is small as compared to other countries. In France, as elsewhere, the percentage of deaths of illegitimate children is twice that of the legitimate. In 1933 there were 487,000 distilleries and saloons in France. Instead of directing attention to the necessity of more births, it would be far better to concentrate on combating the mortality from syphilis, tuberculosis and alcoholism, which are the real causes of the apparent denatality in France.

Richet challenged the accuracy of Roubakaine's figures but endorsed his statement that every effort must be made to decrease the number of deaths in France.

The mortality of new-born children has greatly decreased in nearly all countries during the past thirty years. The question of an increase in the number of births in any country is a purely voluntary one on the part of its inhabitants. In comparing the ratio of births to deaths, for a given population, of certain European countries and that of Japan, the latter shows a much higher percentage.

The natality has greatly decreased in most European countries in comparison with that of Japan. In the case of Great Britain and Germany, this decrease in ratio is particularly striking. These two countries are at present at about the same level as France.

In the case of France the decreased ratio between births and deaths, as Professor Richet pointed out, is more serious than appears at first sight. From 1921 to 1931 about 1,300,000 foreigners came to France. The majority of these were adults. Hence the natality, or ratio of deaths to births, is much higher than in the case of the French native population. During this period (1921-1931) there were 55,000 births and 35,000 deaths among these foreigners. This foreign immigration is responsible for the small percentage, 0.5 per thousand, which represents the excess of births over deaths in France. In Austria and Sweden the percentage is 3 per thousand, while in Japan it is 15 per thousand.

The number of births was less in all European countries, except Portugal, Greece and Ireland, in 1933 than in 1932. Professor Richet did not agree with Dr. Roubakaine that the aid given to young married couples and to those with large families had not greatly aided a rise in the natality ratio in Germany. Richet is of the opinion that legislative and economic aid play a far more important part in increasing the number of births than Roubakaine believes. If France would give a prize of 10,000 francs for every birth, there would be two million every year instead of only 661,000 as in 1933. The total number of births has decreased by about 400,000 in all European countries. This, in Richet's opinion, is not due to the economic crisis. Statistics show that such a factor does not play any part in the question. He believes that the number of births depends on the psychologic state of a people. The wards in Paris that represent the more prosperous portion of the population show the smallest number of births. The same is true of the departments of France. Hence the economic crisis cannot be held responsible. There are twenty-eight million births annually in Asia compared to one million in Europe (not including Russia). Professor Richet was alarmed by these figures and believed that the white races of Europe would be supplanted by the yellow, black and red races. If, in France, no effort is made in the near future to raise the number of births, the natality ratio will fall far below the present low percentage.

At the April 16 meeting, Roubakaine replied to the criticisms of Richet as to the inaccuracy of his statistics. As to the high mortality in France being due to the relatively large number of elderly individuals, this was equally true of other countries or would be so shortly.

In the group above the age of 65, the mortality in France is 926 per hundred thousand and in England 828. Tuberculosis is the most common cause of death of elderly individuals in France. The immigrant population that has flocked to France since the World War is no more prolific than the native population. Twenty years ago France was at the bottom of the list of European countries as regards natality, but in 1933 it had moved up to sixth place and will rank still higher in the near future, if the present relatively high rate of births continues. He agreed with Richet that the natality is three times less in well-to-do families than in poorer ones.

Rist had challenged the statement of Roubakaine that France had a larger number of cases of syphilis, tuberculosis and alcoholism than any other country. Roubakaine cited the fact that, between 1920 and 1931, more than a million persons with syphilis applied for a primary consultation in public dispensaries. As to tuberculosis, only four countries had a higher death rate from this cause than France. Of these four countries, Hungary, Japan, Finland and Czechoslovakia, the last named had brought its death rate from tuberculosis to a lower figure than that of France.

The morbidity of tuberculosis has been greatly decreasing as the result of the excellent prophylactic work in France. This will no doubt greatly lessen the death rate in the near future. As to the consumption of alcoholic beverages, figures were cited showing that this is higher per inhabitant in France than in Germany, Italy or England.

BERLIN

(From Our Regular Correspondent)

March 25, 1935.

Increases in the Average Height and Weight of Children

In the past twenty years, an increase in the average height and weight of school children has been observed. In Leipzig the increases, as announced by Dr. Koch in the *Deutsche medizinische Wochenschrift*, amount to 11.6 cm. and 11.1 Kg. respectively. This improvement has been regarded as an expression of an unusually good general condition. This phenomenon has been observed in Europe, America and Australia. The extensive Leipzig material, which goes back to 1918, covers the records of from 18,000 to 20,000 school children. This study revealed that the whole period of growth in man has undergone a material change. Although the length and weight of children at birth have changed but slightly, the rapidity of growth has been increased, so that the children equal in height children from one and a half to two years older of the prewar period. In both sexes there has been a compensatory shortening of the period of growth amounting also to from one and a half to two years. The height, after completion of growth, has not undergone a corresponding change; nor has there been much increase in the average body weights. In keeping with the accelerated growth, maturity is advanced to a corresponding extent. This is revealed in various ways; for example, by the onset of the first menstruation, which occurs about two years earlier than before the war (in Leipzig, at about age 13). Thus, this whole change, as Koch points out, is characterized by an approximation to the early development occurring in the tropical zones, to which in Germany, and apparently in other temperate regions, a whole generation appears to be subject. A premature aging of the population may possibly result from this early maturity. It is also likely that a corresponding advancement of the menopause will occur. If marriages continue to be contracted at the same average age as heretofore, the child-bearing period will be shortened by two years, which will effect a reduction in the number of births. As Koch points out, this deficit in the number of births may jeopardize the federal government's attempts (thus far rather successful) to combat the low birth rate. These manifestations are assumed to be due to the fact that, during the past twenty years, the human body has been incomparably more exposed to the sun than formerly. This view is termed "the heliogenic acceleration of human growth"; for, according to the observations of biologists, sunlight is capable of accelerating the growth and the maturation of living organisms.

The Relative Fecundity of Women

In connection with the sterilization law for the prevention of offspring with hereditary defects, the question as to the probability of a woman of a certain age having children is significant. Dr. Münzer and Dr. Löer have done research on the subject. For the year 1931 they found that, of all women just entering on the child-bearing period, whether married or unmarried, only about two thirds (68 per cent) have prospects of giving birth to a child. For this estimate the average length of life of 15-year-old girls is taken. Up to age 18 the probability of giving birth to a child remains for women who have had no children about the same as for those who are just entering the child-

bearing period. Beginning with age 19, the chances of a woman giving birth to a child become, at first slowly and then more and more rapidly, less and less, and reach, at the age of 45, which is usually regarded by statisticians as the upper limit of the child-bearing period, practically zero, although even at age 45 0.2 per cent of the women still give birth to a child. Further details are given in the tabulation.

The Percentage of Women Who, Having Had No Children, Will Give Birth to a Child

Age	Percentage to Bear Children	Age	Percentage to Bear Children	Age	Percentage to Bear Children	Age	Percentage to Bear Children
15	68	23	61	31	25	39	4
16	68	24	58	32	21	40	3
17	68	25	54	33	17	41	1.8
18	68	26	50	34	14	42	1.1
19	67	27	45	35	11	43	0.7
20	66	28	40	36	9	44	0.4
21	65	29	35	37	7	45	0.2
22	63	30	30	38	5		

The average number of children that a woman entering the child-bearing period is likely to give birth to was, according to the fertility figures of 1931, only 1.72. This figure also remains about the same up to age 18 and with increasing age drops more and more rapidly, reaching at the age of 45 the value of 0.01 (these figures refer to the women who have given birth to one or more children). According to these figures, it is doubtful whether an increase in the fecundity of the older women can be brought about by the promotion policies of the government. Whether the fecundity of the younger women can be raised by such methods remains to be seen. These figures for 1931 give only the actual birth frequency; that is, figures that are influenced by the willingness to bear children. The biologic birth possibilities, to judge from the results of the statistics on miscarriages, would doubtless be much higher—even for the women of the older age groups, although after age 45 the number of children born would be exceedingly small.

The Hufeland Society

The Hufelandische Gesellschaft, which is one of the most honored medical societies of Germany, celebrated recently its one hundred and twenty-fifth anniversary. The society was founded in 1810 by Dr. Hufeland, Berlin's best known physician of that day, who made a place for himself in the history of medicine by his work "Makrobiotik." In that day a select group of representatives of various branches of medicine met once a week to discuss scientific questions. The Hufelandische Gesellschaft played a leading part for many decades—beyond the confines of Berlin, in other regions of Germany. After the founding of the Berliner Medizinische Gesellschaft by Virchow and Graefe, in the second half of the previous century, the Hufelandische Gesellschaft concerned itself mainly with practical demonstrations. In this chosen field the Hufelandische Gesellschaft is still highly esteemed by practitioners because of the quality of the demonstrations. This society supports also a foundation for the rendering of aid to physicians, and to the widows and orphans of physicians.

Influenza in Children

Finkelstein groups under "influenza in children" all the disorders of the respiratory passages that appear as an acute infectious catarrh. According to Dr. Nassau of Berlin, 17 per cent of these disorders in childhood occur from May to August. The public continues to speak of colds, and some physicians consider chilling a causal factor in influenza, but Nassau affirms that he can nearly always trace the disorder to an infection. Although the season influences the outbreak of the disease, the severity and form of influenza are determined by the age of the patient. Children under 6 months of age seldom suffer from an attack of influenza. Up to the fifth or sixth year, influenza takes a febrile course, with varying degrees of severity. Around the eighth to the tenth year, it takes the form of a troublesome catarrh, with little or no fever, and its harmlessness leads to the wrong impression that the number of attacks are decreasing. The children who suffer repeated attacks appear to belong to a special constitutional group. They are for the most part large boned and obese. The lymphatic tissues appear swollen and spongy, although there may be no actual enlargements. The skin is usually moist. A study of the family history reveals frequent cases of arthritism, a tendency to formation of kidney stones, rheumatism, and an early appearance of arteriosclerosis. Many children who are subject to frequent attacks presented an exudative diathesis as infants. Tonsillotomy has no influence on the predisposition.

ITALY

(From Our Regular Correspondent)

Feb. 28, 1935.

The Academy of Medicine of Turin

The Academy of Medicine of Turin met recently under the chairmanship of Professor Tirelli. Battistini, Cionini and Herlitzka discussed the influence of adrenal cortex extract on the metabolism of carbohydrates. They studied in normal persons the capillary and venous glycemia, and the venous lacticacidemia, following the injection of the cortical extract into the veins and the muscles, not only fasting but also after the administration of dextrose. After the injections while fasting, there usually resulted a diminution of the venous glycemia and an increase of the capillary glycemia. With dextrose there was a slight increase of the capillary and the venous glycemia. The extract always exerted a frank action on the lactic acid, which was always diminished. It was evident that even small doses of cortical extract act on the metabolism of carbohydrates in normal persons.

Marengo and Massimello reported their research on the skin tests for the diagnosis of icterus. Among various tests to detect light forms of hyperbilirubinemia and to distinguish the various types of icterus, the Klein histamine test and the morphine test become positive when bilirubin blood values of from 0.6 to 0.7 mg. per hundred cubic centimeters are reached. The speakers usually found that the results of the two tests agree closely, with a little less intensity for the morphine test. The Brugsch test is less sensitive. The tests mentioned aid in the diagnosis, particularly of latent icterus, but they cannot replace the qualitative and quantitative determination of bilirubinemia.

Dominici and Oliva reported observations to the effect that the protracted administration of vitamin A causes a marked increase of diuresis, which in patients affected with cirrhosis of the liver may reach values twice the normal quantity. The speakers consider it likely that the action of the vitamin on diuresis may be explained by the functioning of the liver.

Consultation Center for Pedagogic Medicine

At the observation center for wayward and abandoned children, there has been created in Rome a consultation center, the purpose of which is to apply promptly to these young persons the treatment necessary for their physical and mental reeducation. The management of the consultation center has been entrusted to Professor Di Tullio, occupant of a chair in criminal anthropology at the University of Rome.

Bürger's Disease

Rolando of Genoa presented before the Società Piemontese di chirurgia the results of studies on the pathogenesis of Bürger's disease. To the results heretofore observed in the treat-

ment by means of removal of the adrenal capsule, the author added his observations in two cases occurring in men aged 22 and 29 respectively, both subjected without avail to the removal of the left adrenal capsule, and, in a second operation, to amputation of the hip and of the distal portion of the metatarsus. According to the speaker, persons affected with Bürger's disease present a hypoplasia, general or partial, of the arterial system. Hence their tissues are insufficiently irrigated. Over a long period of time there may be adjustments but, owing to added causes such as traumas, intoxications and tobaccoism, thromboses and small peripheral infarcts develop; the work of the heart increases and the organ hypertrophies. In the small arteries there is concentric hypertrophy of the tunica media, the epithelium becomes necrotic, and parietal thrombi develop, which later become total and occlude the vessel. The speaker emphasized the uselessness of the treatment heretofore in vogue, both medical and surgical.

Prof. Ernesto Pestalozza

Prof. Ernesto Pestalozza, senator, director of the Obstetricogynecologic Clinic of the University of Rome, died recently. He was of the school of Pavia. At the age of 30 he became director of a clinic. His scientific researches were prolific. His chief work was a series of studies on sarcoma deciduocellulare, which culminated with his research on chorioma. His operative methods in uterovaginal prolapse and in uterine retroversion have been accepted in the ordinary practice of the Italian and foreign gynecologic schools. He was an ardent journalist and was the director of the review *La ginecologia*, which he founded at Florence.

BELGIUM

(From Our Regular Correspondent)

April 6, 1935.

Blood Changes in Radiologists

Addressing recently the Société belge de radiologie, Dr. Maisin considered the morphologic changes in the blood of radiologists. The circulating blood is not easily affected by radiations. The circulating blood in the ears of the rabbit may be irradiated for several hours without evidence of changes in the blood. On the other hand, the hematopoietic organs are very sensitive to radiations. One observes most frequently irritation of the red marrow. A permanent inversion of the white cells is observed at the same time. The relative number of the mononuclears is increased at the expense of the polymorphonuclears. If the irradiations are continued they eventually effect a persistent mild anemia, with inversion of the blood picture in favor of the mononuclears; then the anemia becomes more marked under the effects of the rays and finally takes on an aplastic form, the aplasia affecting both the red cells and the white cells. As a rule, death intervenes with a purpuric syndrome and a noticeable diminution of the blood platelets.

The question arises as to where, in this blood picture, leukemia belongs. Leukemia must be regarded as a reactional condition due to an irritative state, whether of the lymphoid type, the myeloid type or the Blumenthal type, in which an augmentation of the red cells and of the white cells is observed.

Two Belgian radiologists have died from leukemia. Nevertheless the leukemias are relatively more rare than the aplastic anemias. Recent statistics show that 25 per cent of the radiologists are affected with lymphoid leukemia. In 1913 Aubertin called attention to the inversion of the blood picture due to mononucleosis. Maisin, taking account of only frank cases, noted in twenty-eight radiologists: anemia, 12 cases; leukopenia, 5 cases; mononucleosis, 8 cases; polynucleosis, 4 cases; polyglobulia, 6 cases, marked; 12 cases, relative. The anemia is usually mild; the most marked case presented 1,800,000 erythrocytes. The author observed anemia in very young radiologists and in elderly radiologists who had been exposed to rays over a long period. Leukopenia is the most grave sign. It may disappear with suitable rest and proper precautions. Mononucleosis is of less importance. It may develop sometimes after only a few weeks of professional practice and it has a tendency to be permanent. A suspension of practice for two months does not reestablish the normal blood picture. It persists sometimes after two or three years. It does not develop in all persons, its appearance being due to an individual susceptibility. It may disappear during infections and reappear later in a graver form.

Polynucleosis is rare. It is not pathognomonic if there are elsewhere disorders capable of provoking it. It is found nearly always if there is any polyglobulia. It is an expression of irritation of the bone marrow.

Polyglobulia is found in young radiologists who are normally exposed and in elderly radiologists who have been slightly exposed over a long period of time. The highest figure was 6,300,000 erythrocytes. Young types are lacking. If the person affected takes a rest, the figure will frequently drop to five or four million and will sometimes go below normal.

The reticulocytes—filamentous red cells—amount to about 1 per cent in a normal person but may rise to 20 per cent. They are an expression of an irritation of the bone marrow.

Is absolute protection possible? Yes, so far as diagnosis and therapy are concerned, but not for curietherapy. Four assistants in the radiotherapeutic department of the author have an absolutely normal blood owing to the use of adequate leaden screens. For the radiologist it is therapy that presents the gravest danger, owing to the use of inadequate protecting screens and observation windows with insufficient protecting glass. These should be equipped not only with one thickness of leaden glass but also with sliding leaden shutters. One should be suspicious of joints of doors and should demand everywhere an adequate protection of lead.

BUDAPEST

(From Our Regular Correspondent)

April 12, 1935.

International Dermatologic Congress at Budapest September 13-21

The ninth International Congress on Dermatology will deal with the pathology and therapy of skin diseases. Any qualified doctor can be a member of the congress, provided he gives notice to his national secretary or to the organizing committee in Budapest, VIII Mária ucca 41, and at the same time submits the fee, which for ordinary members is 60 pengos (about $15) and for invited nondermatologist members 30 pengos ($7.50). The member fee entitles to the publications issued by the congress. The central bureau of the Congress is at the Budapest Dermatologic Clinic, VIII Mária ucca 41. The telegraphic address is Dermaklin, Budapest; the telephone number is 311-96. The congress will be in session from September 10 to 21 at Budapest V, Vigadó (a concert hall, telephone number 812-12). The official languages of the congress will be English, French, Italian and German. The following national secretaries have been appointed: United States, Howard Fox, 140 East Fifty-Fourth Street, New York; Argentina, Jose J. Puente, calle Santa Fé 995, Buenos Aires; Brazil, E. Rabello, 15 rua Alcindo Guanabara, Rio de Janeiro; Mexico, Jesus Gonzales Uruena, Avenida Oaxaca 80, Mexico City; Uruguay, Jose Brito y Foresti, 1424 Rua Rio Branco, Montevideo.

Independently of the congress but at the same place, September 14, the Union internationale contre le péril vénerien will meet. No papers are admitted which have appeared either in whole or in abstract in any of the four official languages, prior to September 1.

THE FUNCTION OF THE COMMITTEES

The permanent committee of the international Dermatologic Association will determine the possibilities of bringing to life the International Dermatologic Association.

A second committee will endeavor to secure uniformity in the naming of skin diseases. Hereafter diseases should be named according to rational principles. The committee will announce that the terms psoriasis, lichen and pemphigus shall be applied only to the corresponding diseases. Such denominations as psoriasis palmaris syphilitica, herpes tonsurans and pemphigus syphiliticus should be discarded. The question of too long symptomatologic denominations, as erythema exsudativum multiforme and erythema vesiculosum recidivens neurogenes will be decided by this committee.

A third committee, under the presidency of Howard Fox, will try to group skin diseases on the basis of modern pathogenic research. It will delimit the boundaries of dermatology from those of general diseases (syphilis, tuberculosis) and venereal diseases.

A fourth committee will deal with the principles of the most practical method of teaching medical students, postgraduate studies for practitioners, and the training of specialists. As teaching should be mainly visual, a lecture hall will be recommended that has a northern light and is equipped with modern apparatus for the demonstration of films, histologic preparations, experimental animals and, above all, patients. It is desirable that the dermatologic literature should be organized and made cheaper through international agreements.

A fifth committee will deal with the ways and means for interchanging histologic preparations between dermatologic institutes and supplying a great number of preparations of rare cases, and the establishing of a center for the interchange of photographs, moulages, histologic preparations, epilated hairs, parasites, cultures, antigens, vaccines and reprints. All exchanges are to be free of charge, excepting, of course, the costs of freight and postage.

A sixth committee will consider the present crisis in dermatologic practice; the question of clinics, social insurance, industrial cosmeticians, masseurs, quacks; the proportionate distribution of specialists to the population; the access of private practitioners to special hospitals; dermatology and the prevention of diseases, the compulsory notification of single diseases and the dermatologic enlightenment of the people; the responsibility of the dermatologist in practice, professional secrecy, and infections and injury threatening dermatologists; dermatology and eugenics, and the problem of sterilization.

All these committees will meet prior to the congress, so that on the last day of this congress the plenary meeting can vote on the proposals made by the committees.

Besides the six committees, four conferences will deal with dermatologic questions, chiefly from social points of view: 1. Skin tuberculosis. 2. The defense against venereal diseases. 3. The social aspects of skin diseases caused by industrial occupations. 4. A comparative dermatovenereologic conference. Some of the addresses will be made by Aynayd, on la stomatite pustuleuse des ovins; Balogh, on skin lesions in human glanders; Van Hedsborgen, on poultry tuberculosis in men and in animals; Mócsy, on diseases caused by fly larvae; Siegfried, on lesions on the skin of milkers; Weidman of Philadelphia, on dermatoses of monkeys.

PROGRAM OF THE SPECIAL BRANCHES

1. The recently recognized functions of the skin. 2. Reciprocity, correlation and antagonism between the skin and the internal organs. 3. The rôle of allergy in dermatology and syphilology. Coca of New York and Hopkins of New York will read papers, Dr. Coca speaking on the classification of allergic diseases of the skin, with diagnosis and treatment. 4. The disturbances of metabolism in dermatology, including avitaminoses and endocrinodermatoses. Whitfield of London will read a paper on dermatoses and disturbances of nutrition (excessive eating and drinking). Frasier of Peiping will read a paper on the rôle of metabolism in dermatology. 5. The importance of external influences on the forms and frequency of skin diseases. The chief speaker will be Graham of London. 6. The importance of filtrable viruses in the etiology of skin diseases. Bayarri of Madrid, Levaditi of Paris and Eagles of London will read papers. 7. The latest achievements in the field of tuberculous skin diseases. 8. The immunobiologic, nonspecific and medicinal treatment of syphilis. 9. The criteria of the cure of syphilis.

SPECIAL LECTURES

1. Sabouraud of Paris: The evolution of dermatomycology.
2. Memorial lectures by Hoffmann of Bonn and Rille of Leipzig.
3. Riecke of Göttingen: The present position of dermatology in the medical sciences.
4. Mariani of Bari, Italy, and Siemens of Leiden, Holland: Genodermatoses.
5. Morrow of San Francisco, Rogers of Hampstead and Reiss of Shanghai: Recent achievements in the treatment of leprosy.

INDIVIDUAL PAPERS IN SEPARATE HALLS

In addition to papers on the main themes, Andrews of New York will discuss pustular bacterids; Bodon of Budapest, un nouveau traitement de la douleur de l'aortite syphilitique; Castellani of London, less known tropical skin diseases; Kenyeres of Budapest, the forensic aspects of treatment with thallium; Pearce of New York, animal syphilis. Other papers will be read by Harrison of London, O'Leary of Rochester, Minn., and Thomkinson of Glasgow, among others.

OFFICIAL PUBLICATIONS OF THE CONGRESS

In addition to the main report on the transactions of the congress there will be reports on the work of the committees and conferences and a memorial volume on the evolution of modern dermatology in the last fifty years compiled from the works of Bechet, Howard Fox, Howard Fox Jr., Pollitzer of New York, Pusey of Chicago, Castellani, Graham Little of London, Darier, Sabouraud, Dubreuilh of Bordeaux, Jadassohn of Zurich, Matsumoto of Kyoto, Marcus of Stockholm, Hoffmann of Bonn, Rille of Leipzig, Peyri of Barcelona, Truffi of Padua, Riehl of Vienna, and Török of Budapest. There will also be a catalogue of the exhibitions.

EXHIBITS

There will be three exhibitions: 1. Dermatologic relics, medals, plaquettes, souvenirs, pictures, manuscripts, documents, books, apparatus and instruments. 2. Modern histologic preparations, photographs, moulages, charts, reports of analyses, statistical graphs, collections of parasites and cultures, vaccines and toxins. A mycologic exhibit will be demonstrated by Arzt of Vienna, Rivalier of Paris, Castellani of London and Benedek of Leipzig. 3. Industrial exhibits: optical, electrical, radiologic, thermal, mechanical and chemical instruments and apparatus, laboratory and operating equipment, drugs and dressings, administrative and hospital equipment, nursing, cosmetics, dietetic and curative articles of food; also periodicals and books. An international jury will award prizes and medals to the exhibitors.

The IBUS (Hungarian Enterprise for Encouraging Foreigners to Come to Hungary) will ensure members first class hotels and boarding houses, according to three different categories (as to price).

Special committees will arrange excursions, entertainments, concerts and recitals for ladies who accompany their husbands.

Marriages

HARRY JOHNSON SCHMIDT, Convent, La., to Miss Margaret Mary Heath of New Orleans at Ocean Springs, Miss., May 25.

LAWRENCE P. COGSWELL, New York, to Miss Marjorie Smith Garde of New Haven, Conn., at Hartford, Conn., May 18.

JOSEPH LEROY STEVENS to Miss Ruth Wager Turner, both of Dayton, Ohio, at Richmond, Ind., Dec. 6, 1934.

ROBERT WILSON JR., Charleston, S. C., to Miss Gabrielle Palmer McColl of Bennettsville, April 27.

THOMAS ARCHER GIBSON, Winchester, Va., to Miss Helen Hawke of Clifton Heights, Pa., May 4.

WILLIAM MERVEN SEABOLD, Boston, to Miss Esther Jeanette Solomon of Newton, Mass., May 4.

EDWARD M. HOLMES JR., Richmond, Va., to Miss Sarah Daily Walsh of Norfolk, April 27.

DAVID MANNING WOLFE to Miss Georgia Louise Neal, both of Augusta, Ga., April 23.

CLINTON R. COULTER, Parkers Landing, Pa., to Miss Virginia Evelyn Glazier, May 2.

ROSS PARKER COX, Rome, Ga., to Mrs. Julia B. Holland of Atlanta, March 5.

Deaths

Elizabeth Burr Thelberg, Poughkeepsie, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1884; member of the Medical Society of the State of New York; for many years professor of hygiene and physiology at Vassar College; past president of the Medical Women's National Association; chairman of public health in the American Council of Women and the International Council of Women; member of the executive board and at one time director of American Women's Hospitals and was decorated by France and Serbia for work in this organization, which maintains hospitals and clinics for the destitute in various foreign countries; aged 74; died, April 22, of diabetes mellitus and coronary thrombosis.

Arthur Cushing Pearce, Boston; Harvard University Medical School, Boston, 1903; member of the Massachusetts Medical Society; at one time assistant instructor in pathology and bacteriology and instructor in genito-urinary diseases, Tufts College Medical School; aged 59; for many years on the staffs of the Boston Lying-in Hospital and of the Boston City Hospital, where he died, March 16, of coronary thrombosis.

William Royster Thompson ✠ Lexington, Ky.; University of Louisville (Ky.) Medical Department, 1892; formerly health officer of Montgomery County and member of the board of health; for many years assistant physician and psychiatrist of the Eastern State Hospital; aged 64; on the staffs of the Good Samaritan Hospital and St. Joseph's Hospital, where he died, April 29, of pneumonia.

Julius Ola Cobb ✠ Senior Surgeon, U. S. Public Health Service, Los Angeles; Medical College of the State of South Carolina, Charleston, 1883; veteran of the Spanish-American War; member of the American Clinical and Climatological Association; fellow of the American College of Surgeons; aged 72; died, March 26.

Walter Andrew Crowe, Smyrna, Ga.; Bellevue Hospital Medical College, New York, 1881; member of the Medical Association of Georgia; fellow of the American College of Surgeons; at various times on the staffs of the Grady and Wesley Memorial hospitals and St. Joseph's Infirmary, Atlanta; aged 78; died, April 4, in the Georgia Baptist Hospital, Atlanta.

George William King, Secaucus, N. J.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1879; member of the Medical Society of New Jersey, and the American Psychiatric Association; for many years superintendent of the Hudson County Hospital for Mental Diseases; aged 78; died suddenly, April 15, of cerebral hemorrhage.

Clifford Robert Weis ✠ Dayton, Ohio; Ohio State University College of Medicine, Columbus, 1921; fellow of the American College of Physicians; member of the Radiological Society of North America; aged 39; on the staffs of St. Elizabeth's Hospital and the Good Samaritan Hospital, where he died, April 2, of pulmonary tuberculosis.

Matthew Carroll Baines, Canandaigua, N. Y.; Jefferson Medical College of Philadelphia, 1903; member of the American Psychiatric Association and the Association for Research in Nervous and Mental Diseases; served during the World War; manager of the Veterans Administration Facility; aged 60; died, April 23, at Rochester, Minn.

Joseph Augustus Mulholland, New York; Cornell University Medical College, New York, 1900; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; served during the World War; on the staff of St. Vincent's and New York Foundling hospitals; aged 56; died, April 4.

John Lear Treacy, Helena, Mont.; Rush Medical College, Chicago, 1910; member of the Medical Association of the State of Montana; served during the World War; on the staffs of St. Peter's and St. John's hospitals; member of the school board; aged 50; died, February 24, of cirrhosis of the liver.

Joseph Henschel ✠ New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1894; director of the physical therapy department of the Bronx Hospital and St. Elizabeth's Hospital; aged 63; died suddenly, May 1, of coronary thrombosis, while delivering a lecture.

David Ellsworth Clopper, Kansas City, Kan.; University Medical College of Kansas City, 1896; member of the Kansas Medical Society; formerly mayor of Argentine; member of the school board; aged 67; died, March 15, in the Providence Hospital, following an operation for appendicitis.

Clyde Richard Nicholson, Statesville, N. C.; North Carolina Medical College, Charlotte, 1912; member of the Medical Society of the State of North Carolina; aged 45; on the courtesy staff of the H. F. Long Hospital, where he died, April 13, of hypernephroma of the right kidney.

Albert August Axley ✠ Washburn, Wis.; Rush Medical College, Chicago, 1912; served during the World War; formerly health officer; president of the board of education; medical superintendent of the Washburn Hospital; aged 47; died, April 16, of cerebral hemorrhage.

George Frederick Curley, Milford, Mass.; Jefferson Medical College of Philadelphia, 1896; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; on the staff of the Milford Hospital; aged 62; died, April 15, of heart disease.

Joseph Stephen Healy, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; member of the Medical Society of the State of New York; aged 77; died, March 9, in the New York Eye and Ear Infirmary.

Charles Daniel Chambers, Selmer, Tenn.; Memphis Hospital Medical College, 1912; served during the World War; aged 46; died, April 21, in the Veterans Administration Facility, Memphis, of peritonitis, following an operation for ruptured appendix.

William A. Carpenter, Cleveland, Miss.; Mississippi Medical College, Meridian, 1909; member of the Mississippi State Medical Association; at one time health officer of Lauderdale County; aged 49; died, February 26, of lobar pneumonia.

Harry J. Bennett, Lincoln Park, Mich.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1905; aged 56; died, April 26, in the Wyandotte (Mich.) General Hospital, of injuries received when he was struck by an automobile.

William Ernest Packwood, Riverton, Neb.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; member of the Nebraska State Medical Association; aged 58; died, March 5, of cerebral hemorrhage and arteriosclerosis.

James Clyde Johnson ✠ Richmond, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1884; president of the Fort Bend County Medical Society; aged 71; died, April 22, of coronary occlusion.

Edward Manning R. Casey, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1928; member of the Associated Anesthetists of the United States and Canada; aged 34; died, March 29.

Young Ernest Colville, Hilo, Hawaii; Chattanooga (Tenn.) Medical College, 1903; member of the Hawaii Territorial Medical Association; aged 57; died, January 30, of myocarditis, arteriosclerosis and hypertension.

Frederick P. B. Bender ✠ Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; served during the World War; aged 60; died, April 8, in the Jefferson Clinic and Diagnostic Hospital.

Hermann Christopher Hoefling ✠ New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; aged 74; died, April 4, in the New York Hospital, of carcinoma.

Carroll Reid Copple, Keyesport, Ill.; National University of Arts and Sciences Medical Department, St. Louis, 1914; served during the World War; aged 42; died, April 19, of pulmonary tuberculosis.

William Ford Botts, Center, Mo.; Kansas City Medical College, 1897; member of the Missouri State Medical Association; formerly mayor of Santa Fe; aged 62; died, February 1, of angina pectoris.

Lewis Rousseau Scudder, Ranipet, Arcot, India; University of the City of New York Medical Department, 1888; for many years a medical missionary; aged 73; died, April 18, of heart disease.

Wellman D. Conn, Bainbridge, Ind.; Louisville (Ky.) Medical College, 1893; member of the Indiana State Medical Association; aged 74; died, April 4, in the Putnam County Hospital, Greencastle.

Ernest Le Roy Bennett, Bainbridge, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888; aged 69; died, March 13, of gastric carcinoma.

Thomas Bailey Marquis, Hardin, Mont.; University Medical College of Kansas City, Mo., 1898; served during the World War; aged 65; died suddenly, March 22, of acute dilatation of the heart.

William Duncan McKim, Washington, D. C.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1878; aged 80; died, April 11, in Pasadena, Calif.

Francisco J. Rucavado, Chicago; Northwestern University Medical School, Chicago, 1893; aged 76; died, May 6, in the Mercy Hospital, of prostatic hypertrophy and chronic nephritis.

Judge Barclay Cruse, Beaumont, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; member of the State Medical Association of Texas; aged 65; died, April 22.

Allen Douglas Brown, Mineral Point, Wis.; Rush Medical College, Chicago, 1883; formerly mayor; aged 76; died, April 12, in St. Joseph's Hospital, Dodgeville, of coronary embolus.

Oscar Augustus Newman ⊕ Harrisburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; aged 60; died, February 23, of carcinoma of the left lung.

Thomas W. Swalm, Pottsville, Pa.; New York Homeopathic Medical College, 1878; for many years member and president of the board of education; aged 79; died, April 5.

John Luther Campbell, Birmingham, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1880; aged 77; died, April 21, of coronary thrombosis.

William Edgar Hare, Garnett, Kan.; Eclectic Medical University, Kansas City, 1910; member of the Kansas Medical Society; aged 73; died, February 10, of angina pectoris.

Walter Samuel Hargett ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1905; aged 55; died, March 9, at his home in Penn Valley, Pa.

Charles Otto Lowry, Pasadena, Calif.; Central College of Physicians and Surgeons, Indianapolis, 1896; aged 61; died, February 25, of chronic myocarditis and nephritis.

Charles Fisher Mills, Pismo Beach, Calif.; Harvard University Medical School, Boston, 1882; aged 74; died, March 31, of heart disease, hypertension and arteriosclerosis.

James Edward Dempsey, New York; Harvard University Medical School, Boston, 1911; aged 51; on the resident staff of the Riverside Hospital, where he died, April 9.

Frederick Eben Cummings, Concord, N. H.; Dartmouth Medical School, Hanover, 1882; aged 76; died, April 4, of cerebral hemorrhage and diabetes mellitus.

John Allison Coen, Cameron, W. Va.; University of Pittsburgh School of Medicine, 1911; served during the World War; aged 48; died, April 9, of angina pectoris.

William Sloane Orr, Denver; Denver Homeopathic College, 1905; served during the World War; aged 71; died, February 17, as the result of an automobile accident.

William Brady Sharkey ⊕ Clinton, Ill.; St. Louis University School of Medicine, 1924; aged 35; died, April 13, in the Dr. John Warner Hospital, of pneumonia.

Martin John Waldron Jr., Denver; Denver and Gross College of Medicine, 1904; aged 53; died, April 6, in St. Anthony's Hospital.

Edwin W. Haradon, Old Hickory, Tenn.; State University of Iowa College of Medicine, Iowa City, 1886; aged 72; died, April 11, of cerebral hemorrhage.

Charles Walter McColl, Wyandotte, Mich.; Detroit College of Medicine, 1895; member of the Michigan State Medical Society; aged 69; died, April 1.

Archer Wilson Paulette, King City, Mo.; Central Medical College of St. Joseph, Mo., 1896; aged 62; died, April 1, in Salisbury, of coronary embolus.

William M. Hilley, Sidney, Texas (registered by Texas State Board of Medical Examiners under the Act of 1907); aged 59; died, February 25.

Samuel Shaw Crumbaugh, Toledo, Ohio; Medical College of Ohio, Cincinnati, 1872; aged 87; died, April 4, of arteriosclerosis and myocarditis.

John Henry Watson, Chicago; McGill University Faculty of Medicine, Montreal, Que., Canada, 1895; aged 64; died, April 19, of myocarditis.

Henry Stein, Altamont, Ill.; Missouri Medical College, St. Louis, 1894; for many years president of the school board; aged 65; died, April 16.

Wyatt Hutchins Alexander, Blakely, Ga.; Atlanta Medical College, 1895; member of the Medical Association of Georgia; aged 60; died, April 17.

Carl Eugene Schulte, St. Louis; College of Physicians and Surgeons, Keokuk, Iowa, 1896; aged 67; died, April 10, of cirrhosis of the liver.

Robert William Haynes, Long Beach, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1881; aged 74; died, March 16.

Henry Merrill Barrett, Mount Elgin, Ont., Canada; Western University Faculty of Medicine, London, 1912; aged 45; died, March 18.

Frank Maxon Taylor, Portland, Ore.; University of Oregon Medical School, Portland, 1901; aged 61; died, April 1, in the Emanuel Hospital.

Frank D. Glenn ⊕ Blairsville, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1904; aged 55; died, March 9, of diabetes mellitus.

John Alexander Heatly, Schenectady, N. Y.; Albany Medical College, 1887; aged 72; died, April 3, of gastric ulcer and hemorrhage.

Samuel Newell Smith Jr., ⊕ Providence, R. I.; Cornell University Medical College, 1905; aged 53; died recently, of lobar pneumonia.

Richard P. C. O'Brien, Minneapolis; Chicago Medical College, 1885; aged 72; died, April 4, of coronary thrombosis and myocarditis.

Aaron James Hunter, Orangeville, Ont., Canada; Victoria University Medical Department, Coburg, 1887; died, January 31, of septicemia.

Simon Miller, Mondovi, Wis.; University of Pennsylvania Department of Medicine, Philadelphia, 1870; aged 86; died, April 23.

William McEnery Brown, Neustadt, Ont., Canada; Trinity Medical College, Toronto, 1884; L.R.C.P., London, 1884; died, April 14.

Edwin Ferdinand Corbell, Sunbury, N. C.; University of Maryland School of Medicine, Baltimore, 1886; aged 73; died, April 11.

Leo Francis Bonner, Paulsboro, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1928; aged 30; died, April 23.

Harry H. English, Conesville, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1901; aged 72; died, April 2.

Marshall L. Bacon, Concord, Mich.; Detroit College of Medicine, 1890; aged 76; died, April 28, of cerebral hemorrhage.

Louis Nazaire Turgeon, St. Prime, Que., Canada; Laval University Faculty of Medicine, Quebec, 1922; died, February 19.

John S. Mortlock, Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1878; aged 84; died, February 1.

Joseph H. Hall, Norman Park, Ga.; University of Georgia Medical Department, Augusta, 1889; aged 68; died, March 1.

Carl George Rahal, Los Angeles; University of Oregon Medical School, Portland, 1908; aged 48; died, February 9.

Dugald McKenzie, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1886; aged 74; died, April 1.

Abraham U. Chase, Tiff City, Mo.; Marion-Sims College of Medicine, St. Louis, 1892; aged 67; died, April 4.

Archie Griffin ⊕ Valdosta, Ga.; Louisville (Ky.) Medical College, 1894; aged 65; died, May 2, of pneumonia.

Herman Burgin, Philadelphia; Jefferson Medical College of Philadelphia, 1879; aged 84; died, April 14.

Henry Snyder ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1906; aged 53; died, April 16.

Correspondence

A SIMPLE AND EFFICIENT PATCH TEST

To the Editor:—Because of the complicating dermatitis that occurs after the use of any adhesive agent, such as tape or the gluelike substance that has been used on the cotton felt rings, the following simple method has proved effective. It eliminates the use of rubber tissue or any agent that might produce a dermatitis through allergy.

A circular piece of sterile absorbent cotton about the size of a silver dollar (38 mm.) and from 0.5 to 1 cm. thick is used and the suspected agent is placed on this. If a powder is used, an amount covering an area about 1 cm. square is placed in the center of the cotton; if a liquid is used a small piece of cotton 1 cm. square may be soaked with the agent and placed in the center of the circular pad of cotton.

After the skin has been cleansed with ether, this cotton pad is placed with the agent against the skin on the site chosen, usually the upper part of the back. Flexible collodion is used to stick the test pad to the skin and this is well coated with the collodion. The patient is instructed to return for examination after twenty-four or forty-eight hours and a part of the patch may be loosened for examination and then resealed.

This simple method has proved adequate with insecticides, bakelite powder, soda solution and oil.

H. S. REYNOLDS, M.D., Hartford, Conn.

INFECTION OF NURSES WITH TUBERCULOSIS

To the Editor:—The communication of Dr. H. J. Ustvedt in THE JOURNAL, March 9, page 851, touches several important problems. The nurses who enter the Ullevaal Hospital in Oslo with negative tuberculin reactions are all apparently infected with tubercle bacilli during a three year period of training. This experience, combined with the additional observation that in this interval 4.8 and 34.6 per cent of the nurses who entered the institution with positive and negative tuberculin reactions respectively developed clinical tuberculosis, illustrates the need for the routine observance of strict contagious technic by all who are attending tuberculous patients. Violations of basic principles of communicable disease control by the staffs of hospitals retard the progress of programs designed to eradicate tuberculosis. This situation, prevalent doubtless in hospitals throughout the world, merits immediate correction under the leadership of the medical profession; otherwise a penalty in the form of new cases of clinical tuberculosis of institutional origin continues to be paid for permitting infection to occur.

Dr. Ustvedt presents valuable data derived from studies now in progress in Oslo, which he interprets as significant evidence that tuberculin sensitive individuals withstand exposure to infection more successfully than normal uncontaminated persons do.

Certain observations (to be published in the *American Journal of Diseases of Children)* made at Lymanhurst, however, fail to support this view. During the past thirteen years we have observed and traced 183 children, who without exception experienced pulmonary infections in dosage sufficient to produce infiltrations demonstrable on chest films. On the basis of repeated examinations the lesions were recognized as tuberculosis of the first infection type in 131 instances, and as phthisis in the remaining fifty-two cases. One of the group of 131 children with primary tuberculosis died of tuberculous meningitis. In the remaining 130 cases of this series the infiltrations resolved in time without requiring the aid of therapeutic measures, to leave several examples each of roentgenographically negative lungs, Ghon tubercles, calcified mediastinal glands or fibrotic scars. Not one of these pneumonic lesion producing first infections resulted in phthisis.

The experience of these 131 freshly infected children with primary tuberculosis was quite different from that observed for the remaining fifty-two patients who on admission had positive tuberculin reactions and no roentgenologic evidence of phthisis but developed tuberculous pulmonary infiltrations subsequent to their entry to the clinic. These fifty-two new lesions known in each instance to be the result of superinfections and not the immediate product of first infections manifested characteristics deemed typical of phthisis in tending to persist, to spread, to cavitate and to cause illness. In spite of special therapy, thirteen of these patients have died of tuberculosis and several additional cases now show far advanced disease. Not one of the fifty-two reinfection lesions has resolved in the manner exhibited by over 99 per cent of the 131 observed first infection infiltrations. Statistical analysis of these data, involving the computation of chi-square, reveals the existence of no chances per million for accidental sampling to explain the observation that infections capable in all instances of producing pulmonary infiltrations consistently result in a relatively benign type of tuberculosis but fail to cause phthisis when they are primary in nature, whereas lesions producing superinfections or reinfections consistently result in phthisis, a relatively serious condition. This observation is interpreted as significant evidence that a susceptibility to the reinfection or adult type of pulmonary tuberculosis resides solely in patients who have survived the immediate risks that attend an initial infection. By virtue of this dangerous susceptibility created by a first infection, a direct causal relationship seems to exist between primary tuberculosis and phthisis. Apparently the latter develops solely following the antecedent presence of the former, which produced complex abnormal immunologic changes favoring this situation. A susceptibility to phthisis is a serious double liability. Its materialization claims many lives and at the same time it permits the origin of the form of the disease which perpetuates a major health menace. The solution of this public health problem seems to depend mainly on preventing infections rather than on placing reliance on an alleged postinfection acquired immunity.

The use of different methods for classifying tuberculosis may explain a part of the failure of deductions based on independent but otherwise similar studies to be in agreement. Apparently greater attention is paid at Lymanhurst than at Oslo in differentiating the benign primary from the more serious reinfection forms of tuberculosis. This differentiation is made at Lymanhurst on the basis of several points, including knowledge of previous tuberculin reactions, serial x-ray plates and clinical observations. When differentiated on this basis, the death rate observed for the first infection type of pulmonary tuberculosis exhibiting parenchymal infiltrations was found to be 0.76 per cent (one of 131 cases) as compared with a rate of 25 per cent (thirteen of fifty-two cases) for the cases diagnosed as examples of phthisis. Statistical analysis of these observations, employing the computation of chi-square, reveals the existence of no chances in a thousand for the difference between the high but as yet incomplete death rate for patients considered to have phthisis as compared with the low and probably final primary tuberculosis death rate for children with lesions diagnosed as the first infection type to be due to accident. These observations are interpreted as reliable evidence that the type of pulmonary tuberculosis present in one of our series of cases is a clinical entity distinct from that present in the other, that the separate identification of these two conditions has been carried out correctly at Lymanhurst, and lastly that normal children control lesion-producing first infections far more satisfactorily than tuberculin-sensitive individuals resist

lesion-producing reinfections. A superior ability to combat tuberculosis seems to be possessed therefore by the previously uncontaminated child.

Before the theory that a tuberculous infection produces a worthwhile immunity can be accepted without qualifications, indisputable evidence should be presented to show that the initial deposit of tubercle bacilli does not create a susceptibility to phthisis and that primary foci of disease are not parent eventually in many instances to clinical forms of the disease of endogenous origin such as tuberculosis of serous membranes, of bones and joints, of different viscera, or of phthisis.

These possible potentialities, which often are months or years in materializing, combined with the more immediate serious catastrophes that complicate a certain percentage of first infections with virulent tubercle bacilli, must be balanced as liabilities versus the immunity alleged to arise from a primary infection, before an experience of this character can be definitely identified as conferring positive net benefits on the patient.

Considerable justification exists, I believe, for being reluctant to accept the excellent work in Oslo as final proof that net benefits consistently accrue to those who become contaminated with virulent organisms. The divergence of the opinions derived from independent studies directed toward solving perplexing and important questions is stimulating. Dr. Ustvedt's communication focuses attention on crucial problems that invite investigators to aid one another in a continued search for the truth.

C. A. STEWART, M.D., Minneapolis.

PERFUME DERMATITIS

To the Editor:—I read with a great deal of interest the article by Dr. Norman Tobias on "Emeraude Perfume Dermatitis." In an article on "Lipstick Dermatitis" to be published in the *Archives of Dermatology and Syphilology,* I describe work in which it was found that the factor was the perfume component and the specific substance of the perfume component (methyl heptine carbonate). This is a new synthetic derived from ricinoleic acid and is widely used by the perfumers for violet odor. I have found over 50 per cent of both men and women sensitive to this substance by the patch test.

In his conclusion, Dr. Tobias mentions three possible causative factors in perfume dermatitis; namely, concentration of the perfume, irritants due to aging, and sunlight. I do not know whether or not emeraude contains methyl heptine carbonate, but from my limited observations I believe that this substance is of prime importance in the development of a dermatitis in which perfume may be a factor. Perfumers have recognized methyl heptine carbonate as an eczematizing agent and are eliminating it.

HARRY LEONARD BAER, M.D., Pittsburgh.

OSTEOPATHY AND LICENSURE

To the Editor:—Every earnest physician should have a liberal supply of reprints of the article by Etherington on this subject (THE JOURNAL, April 27, p. 1549) for distribution to the public. It is quite superior to anything that has been published.

I still have in my files roentgenograms of a neck which one of the ilk succeeded in fracturing in the then faddish treatment of polishing up the upper end of the spine.

The woman lived several years. She was seen by Dr. Goldthwaite of Boston; and later at autopsy by Dr. J. D. Pilcher, under the direction of the late Dr. Carl Hamann, who was present, the fracture was verified.

It may not have been a misfortune to the public that this same chap ultimately located in Chicago, whence shortly afterward he migrated to a place where they probably use some sort of heat, generated by brimstone, for fusing his breaks.

W. F. BROKAW, M.D., Cleveland.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

EFFECTS OF EXERCISE ON GASTIC ULCER

To the Editor:—What is the current opinion as to the effect of physical exercise, either moderate or violent, on a gastric or duodenal ulcer in its quiescent stage in an adult of middle age? Please omit name and address.

M.D., New York.

ANSWER.—Recent study (Hellebrandt, F. A., and Dimmitt, L. L.: *Am. J. Physiol.* **107**:355 [Feb.] 1934) has shown that, in general, violent exercise shortly before eating definitely inhibits gastric secretion and motility but that this first phase of inhibition of the digestive cycle is followed by a period of augmented activity. The hypersecretion and hypermotility already present in these patients would therefore be increased and for this reason violent exercise should be contraindicated in a patient of middle age with a gastric or duodenal ulcer in its quiescent stage.

Moderate exercise is as a rule advised by most gastroenterologists as part of a system of hygienic living for the ulcer patient. (Harris, Seale: *J. Oklahoma M. A.* **26**:287 [Aug.] 1933). Ulcer patients prior to dismissal are given an outline of a system for hygienic living, as follows: "Fifteen minutes' exercise with the windows wide open before the morning bath. Follow the bath with massage (brisk rubbing with the open hand) of the entire body until the skin is reddened. A walk of one or two miles in the open air and sunlight each day or, what is better, play golf two or three afternoons a week." In addition there is advised "eight hours for play," which includes morning exercise, bath, golf or outdoor exercises.

It is important to realize that the treatment of an ulcer patient must have as its objective the treatment of the entire patient. This includes to a large extent elimination of the nervous stresses and strains as well as local therapy directed at the ulcer. No ulcer patient should be subjected to a competitive golf match or to any other exercise that increases nervous tension. As far as possible these individuals should be taught serenity and relaxation both in their vocations and in their avocations.

ACUTE NEPHRITIS IN A CHILD

To the Editor:—In May 1934 I saw a boy, aged 11, who, following a mild respiratory infection, began to pass urine of a reddish color. There was also at the onset some puffiness of the eyelids and his mother stated that his face looked a little swollen. These symptoms were noted by the patient's mother for two weeks before I was called to see him. During this time he had attended school and was about as active as usual. At the time of my first visit the patient showed moderate edema of the eyelids and face. He was pale; the hemoglobin was 55 per cent. The temperature was 100 F.; the pulse was 90, and respirations numbered 20. The heart, lungs and abdomen were normal. There was no edema of the extremities. The urine was smoky, was red, and contained 3 + albumin. There were numerous red blood cells and hyaline and granular casts. The blood pressure was 140 systolic, 100 diastolic. He was put on a diet poor in salt, high in carbohydrates and with enough protein to care for his needs. Fluids were moderately restricted. He was ordered to remain in bed. On this regimen he gradually improved. In two months the albumin, blood and casts were no longer found. There was no edema. The blood pressure, however, remained high but with variations. The systolic pressure ranged from 130 to 170 and the diastolic from 90 to 115. He was kept in bed for a month after the urine cleared up. He was then allowed up part of the time. This seemed to make no difference in the urine, and the blood pressure averaged the same as when he was in bed. He has definitely impaired renal function, for the maximum specific gravity attainable on a concentration test is 1.014. His nonprotein nitrogen is 60 mg. per hundred cubic centimeters of blood, although the value for creatinine is normal, being 1.73. Here then is a boy with chronic glomerulonephritis, hypertension, impaired renal function and nitrogen retention. I need advice on the following questions: 1. At this stage should bed rest be enforced? 2. What is the usual prognosis in a case of this kind? Any suggestions as to diet or management of this case will be greatly appreciated. Please omit name.

M.D., Wisconsin.

ANSWER.—1. Five or six months has passed since this child had an attack of acute nephritis, and the condition may now be regarded as subacute or chronic. Since there is no evidence of an active infection, the boy may be out of bed, and he may be allowed activity and exercise, though not up to the point of fatigue.

2. The prognosis in such a case will vary with the extent of actual anatomic damage to the kidney tissues. Many of these

children recover entirely if no additional acute attacks of nephritis occur. It should always be remembered that the recuperative powers of a young person are comparatively greater than those of an adult.

As to the diet and management of such a case, it is being generally accepted that a more liberal diet than was formerly allowed is advisable. Enough protein should be allowed to keep the patient in a positive balance, and this will approximate 1 Gm. of protein per pound of body weight. Some children who have been kept on a protein-free diet without results have shown marked improvement when a more liberal diet was given.

These children should be kept warm and warmly clad, and protected against bodily chilling. They should be protected, if possible, against infections; and exercise should not be allowed to the point of fatigue. As a matter of fact, if it is feasible, these children do better if they are sent to a warm climate during the cold winter months.

CHRONIC HYPERTROPHIC ARTHRITIS

To the Editor:—A white man, aged 43, came to me three years ago complaining of pain, redness and swelling in the right first metatarsophalangeal joint. The roentgen diagnosis was hypertrophic arthritis. This has gradually progressed to the other foot, the hands, the cervical vertebrae, the wrists and the elbows in the order named. When first seen the patient had one nonvital tooth and a prostatitis, manifested by swelling and tenderness, and from 25 to 50 pus cells per high power field. The tooth was extracted and the prostate treated by diathermy and massage, with gradual improvement. Since the marriage of the patient one year ago the pus cells have disappeared from the expressed secretion. A tonsillectomy was performed in June 1933. One year ago a general examination showed a persistent achlorhydria, blood nonprotein nitrogen 33.4, uric acid 3.4 and a basal metabolic rate of —3 per cent. The blood count, urinalysis and Wassermann reaction were negative. The man continues to have increasing involvement of the joints, muscular pains, a feeling of fatigue and gastric distress. He is a mental worker and improves immediately following vacations. Medication, including salicylates, cinchophen, ammonium ortho-iodoxybenzoate and hydrochloric acid, gives little or no improvement. 1. Is there any other drug offering a good chance of success in an arthritis of this type? 2. What is the status of endocrine therapy? 3. Is induction of fever by mechanical means any more than palliative? 4. What are the comparative values of nonspecific protein therapy and autogenous vaccine (prepared, for example, from the prostatic secretion)? Please withhold name.

M.D., Michigan.

ANSWER.—1. There is no drug that can be used safely which offers much chance of success in treating arthritis of the type described. Elixir of phenobarbital in 4 cc. doses three times a day in addition to the salicylates has been found in some instances to bring about a more gratifying response than do the salicylates alone.

2. Endocrine therapy has proved of little value except in some cases in which the basal metabolic rate was definitely low.

3. The induction of fever by mechanical means often brings about a rather striking degree of improvement. In some patients this improvement has been maintained for long periods, but in most instances it has been temporary. It is doubtful whether the procedure justifies the risk that is entailed except in the case of relatively young persons who are organically sound and for whom the procedure may be repeated at regular intervals.

4. The question concerning the comparative value of nonspecific protein therapy and autogenous vaccine is one that is being widely discussed and on which there is no uniform agreement at the present time. The use of nonspecific protein causes a rise in body temperature that is quite comparable, both in its clinical aspect and in the results obtained, to the production of fever by mechanical means. Theoretically this improves the peripheral circulation and increases the metabolic processes of cells throughout the body. The autogenous vaccine is usually given in minute doses and causes little if any rise in the temperature of the body as a whole. The theory of this therapy would seem to be logical from the standpoint of raising the body's resistance to a specific organism, provided the vaccine is obtained from organisms that may be reasonably suspected as being causative agents in the production of the disease itself. Repeated doses of such vaccines, together with the usual program for the care of these patients, consisting of a diet low in carbohydrates and rich in vitamins C and D or to which these vitamins have been added in concentrated form and, above everything else, rest both at night and, if possible, for an hour or more during the day, would seem to offer the best prognosis for ultimate recovery.

The fact that the patient reported improvement following a vacation is an almost uniform observation in patients with this type of arthritis. For that reason long periods of rest and, if possible, rest in a hospital or sanatorium where the program of care can be rigidly enforced, makes the prognosis better than is possible for those who for economic reasons have to work while undergoing treatment.

VASODILATORS IN HYPERTENSION

To the Editor:—I write to ask why the standard vasodilators are not in good repute for the treatment of hypertension. Although their action is only temporary and palliative, no satisfactory remedy for the condition exists. Since vasodilators in my experience act promptly and positively, it seems to me that their administration should be endorsed in selected cases. The ultimate results of hypertension are usually a diseased heart, sclerotic arteries, or both. Hence is it not reasonable to assume that any measure that will lower the tension even for a few hours a day may help to postpone the final disaster? Concretely, I have a patient whose pressure falls from 180/100 to 162/84 on the administration of 2 grains (0.13 Gm.) of sodium nitrite, remaining at the lower point for two or three hours. During this period, except sometimes for a slight headache, the patient feels more comfortable. Am I not justified in alleviating his condition thus, at least until something better comes along? Please omit name.

M.D., Illinois.

ANSWER.—The ill repute of the nitrite vasodilators for the treatment of hypertension has probably been exaggerated. It is a fundamental principle of sound therapeutics that the injured structures be given the maximum of rest. In hypertensive arterial disease the primary injury is the continuous hypertonia of the medial musculature of the arteriole. Arterial sedation, mild and long continued, is an important part of the management of hypertension. To be of any permanent or curative value, such sedation must be continued for months.

The chief basis for criticism of the nitrite vasodilators is the transient nature of their pharmacologic effect. Of the soluble nitrites and nitrates (sodium nitrite, amyl nitrite, glyceryl trinitrate ["nitroglycerin"], erythrol tetranitrate, mannitol hexanitrate and spirits of ethyl nitrite) mannitol hexanitrate is said to have the most prolonged effect, the arterial tension usually remaining below previous levels for from five to six hours, whereas the effects of sodium nitrite ordinarily persist for from one to two hours. The extent of fall increases with the dosage, but the duration of action is not much influenced by the amount administered. After the initial violent drop in pressure that occurs on the inhalation of amyl nitrite, the tension may rise to levels in excess of the original reading.

Nitrites are not wholly innocuous. Large doses cause the formation of methemoglobin. Increased tolerance to the alkyl nitrates (especially to nitroglycerol) is acquired quickly, so that the dosage must be increased to obtain the usual effect. Avoidance of the drug for a few days usually restores the responsiveness. It is claimed that tolerance is not acquired to sodium nitrite or to erythrol tetranitrate. Excessive acute reduction of the arterial tension may cause relative hypotension with impairment of the cerebral circulation, especially if the hypertension has been long standing and arteriolarsclerosis has occurred. The dose of 0.13 Gm. of sodium nitrite, although within the accepted range, is a liberal one. It would appear more logical to give smaller doses more frequently, so that a milder effect might be maintained longer.

Because the fleeting nature of the vasodilator effects of these soluble compounds makes the induction of persistent and prolonged arterial sedation difficult, the use of a poorly soluble nitrate, which is reduced to nitrite by B. coli, has been suggested. Bismuth subnitrate, 0.6 Gm. (10 grains) three times daily for weeks, has proved in the hands of a number of investigators to be a safe and often valuable adjunct in the management of hypertensive disease. The slow but continuous liberation of nitrite by the bacteria of the bowel generally maintains a continued mild vasodepressant effect. In the amounts indicated, bismuth subnitrate is nontoxic and rarely induces constipation. Its administration is safe. The thiocyanates, on the other hand, are more active arterial sedatives, but are too toxic to be safe. Although a few have doubted whether appreciable nitrite is obtained for the bismuth subnitrate reaction, it has recently been demonstrated that the nitrite content of the blood is distinctly increased by the injection of bismuth subnitrate as well as by sodium nitrite.

Aside from continued arterial sedation, it is imperative that therapy include correction of any causative factors that may be amenable to therapy. In the query nothing was stated concerning the probable or possible etiology of the hypertension in the case mentioned. Such factors as chronic plumbism, focal infections, dietary indiscretions, fatigue and worry and endocrine dyscrasias must be carefully searched for and, if feasible and safe, corrected. Curative therapeutics must include due consideration of etiology. Vasodilator drugs should be employed as auxiliaries.

ATROPHY OF MUSCLES AFTER NERVE INJURY

To the Editor:—A man, aged 24, was injured three years ago in an automobile accident. His left hand was amputated just above the wrist immediately after the accident. There were no other apparent injuries to the left extremity except minor abrasions of the skin. However, in the three subsequent years there has been a progressive atrophy of the muscles about the left shoulder and arm, suggesting an injury to the left brachial plexus. On examination, active movement of the left extremity is practically nil, yet many of the groups of muscles react slightly to stimulation with the galvanic current. The patient has requested a higher amputation of the left extremity because of its uselessness and cumbersomeness. Is it possible to develop the muscles of the extremity by electrical stimulation after three years of progressive atrophy?

A. H. Kimmel, M.D., Norwalk, Ohio.

Answer.—There is no conclusive evidence that atrophy of the muscles can be prevented by electrical stimulation. However, there is clinical evidence that the use of electrical stimulation by means of the galvanic current with the slow sinusoidal current will assist in preventing atrophy.

In this particular case a careful test should be made for the reaction of degeneration; also a functional muscle test, the same as that which is made for poliomyelitis to determine the strength of the various muscle groups. Both tests should be made in the lying position. If a Hubbard tank is available, the patient should be placed in such a tank and the shoulder and elbow joints passively moved in all planes, followed by assistive therapeutic exercise for all muscle groups. Even though one is able to feel only faint contractions with the first endeavor, one should persist in this type of work and proceed from the assistive to free movement and then to the resistive type. The patient should be dried well after being removed from the Hubbard tank. One should proceed with a light stroking massage for five or ten minutes and follow this with a mild slow sinusoidal current to a point of slowing contraction. This may not be more than three or four contractions, just enough current being used to produce a mild contraction.

At the end of a month one should check again with a functional muscle test and an electrical test to determine whether the reaction of degeneration has decreased. If these tests show improvement, one should continue with the treatment, checking at the end of each month as to the further improvement being made. One need not consider amputation until after the use of treatment as outlined has proved of no value.

Examination in the lying position or in the Hubbard tank may prove that there is more movement than was originally thought.

URTICARIA WITH TRAUMA

To the Editor:—A white man, aged 42, who is a cornet player, has suffered for the past three years from redness, swelling and itching of any part of his body that is used or rubbed. If he sits on a hard chair, his buttocks are afflicted; if he plays the cornet, his hands and lips; if he wears a hat and sweats, his forehead. About once in four months, and especially if he has a head cold, he develops a generalized itchy, maculopapular erythematous rash. All of these disappear spontaneously after one and one-half to two days. There is no history of allergy. General physical examination is negative. The Wassermann reaction is negative and the urine and nonprotein nitrogen are normal. Patch tests are negative except for rye, egg, pea and lima beans. Elimination of these has produced no result. Are all of his symptoms allergic? If not, can you suggest a diagnosis? What further diagnostic procedures would you suggest? What is the present status of calcium, ephedrine and nitrohydrochloric acid in the treatment of allergy? Please omit name.

M.D., Connecticut.

Answer.—The most definite and constant element in the case cited is the precipitation of urticarial swellings at the point of mechanical irritation. Two possibilities are present. One is that an underlying chemical allergy, such as food sensitiveness, is present and the trauma is the precipitating factor in the production of the lesion. The other possibility is that it is a pure physical sensitiveness. Even though the latter is the case there is still no reason why it should not be regarded as "allergic," since allergy is essentially an abnormal response to a normal stimulus.

Pure physical allergy due to trauma is probably not common and it would be best to assume for the present that other causes are involved. Food sensitization should be considered first. Complete cutaneous tests should be made with foods and also inhalants such as epidermals and pollens. Intradermal tests are indicated if the scratch tests are negative. Food elimination trials are next in order if the tests are not conclusive. Patch tests in urticaria are of almost no value. They find their greatest sphere of usefulness in contact dermatitis. A search for foci of infection should be carefully made, since a fair proportion of instances of urticaria and angioneurotic edema are caused by such chronic infections as may occur in the tonsils, sinuses, teeth, gallbladder and disturbed bowel function. Further credence of such a possibility is evidenced in this case by the advent of acute exacerbations of urticaria following an acute infection of the respiratory tract.

In the event of failure of the foregoing, a few other diagnostic and therapeutic procedures are available. Gastric analysis may show an achlorhydria or a hypochlorhydria. The use of dilute hydrochloric acid with meals with the possible addition of other enzymes may be of benefit. Occasionally the basal metabolism may be lowered, calling for the use of thyroid extract. The serum calcium is rarely below normal. The administration of calcium salts is rarely of benefit, although the use of parathyroid extract subcutaneously frequently controls the condition. A possible endocrine disturbance should be kept in mind. The possibility of nervous and psychic factors should not be neglected, since they are at times even more important than the others.

It may be possible to help the patient by repeated attempts to "desensitize" the skin by mechanical trauma. This may be tried with the method of daily brisk rubs with a stiff brush, for example.

Ephedrine is of course of only temporary benefit, and even then it usually does not give the results that one might expect. It is probably, however, the best and simplest symptomatic remedy, particularly in acute cases of urticaria. In other allergic conditions, such as asthma and hay fever, its action is more certain. In the main, however, ephedrine has not quite the degree of usefulness in allergic diseases that was expected a number of years ago. Nitrohydrochloric acid is probably no different than any other acid; its action is probably that of favoring digestion. It may be useful occasionally in food allergy. In the hands of most men of wide experience in allergy it has been an almost universal failure in the treatment of hay fever.

LEUKOPENIA

To the Editor:—I am a physician, aged 28. After an exhausting winter, for three and one-half months I was bothered by periodic flare ups of marked weakness, easy fatigability and generalized muscle and joint pains, without fever and with good nutrition. Exhaustive laboratory and roentgen tests for foci of infection were all negative and no clinical or physical pathologic condition was found except a white blood count of 5,200 and neutrophils 35 per cent with otherwise a normal smear. After perfect hygienic treatment there has been some slight improvement, but exacerbations every seven to ten days still occur with a fall of only 1,000 in the white blood count. I should much appreciate any suggestions for treatment of this condition. Have you heard of mild neutropenia alone causing these symptoms? Should pentnucleotide be used? Would extract of yellow bone marrow be of use? What is the dosage and where can this product be procured? How about liver extract? One month ago I tried three 10 cc. shots daily of pentnucleotide, with severe immediate and delayed reaction of malaise and fever. I am now trying 5 cc. injections every other day. The results have been only questionable.

M.D., New York.

Answer.—The influence of physical or mental stress in precipitating the syndrome of relative granulopenia with malaise and exhaustion in individuals with a readily decompensated myelopoietic marrow function should be more widely appreciated. Proper rest and relaxation in the absence of other medication will frequently suffice to eliminate symptoms and restore the granulopoietic function to normal. In another physician with an identical history seen first four years ago, the syndrome recurred three times; nucleotide therapy invoked a remission the first two times, but rest and a complete divorcement from all professional responsibilities for a six week period was quite as effective the third time. There have been no symptoms and the white count has remained normal for the past two years, the physician having resumed active practice. Therefore the first requisite under such circumstances is, temporarily, complete emotional and physical rest.

The degree of granulopenia is not necessarily proportional to the severity of symptoms. A relatively moderate neutropenia may be associated with marked subjective symptoms, while an extreme deficiency sometimes is unattended by the classic signs described by Schultz. In the absence of other demonstrable cause it is possible for the symptoms mentioned to be secondary to the relative neutropenia (35 per cent of 5,200 cells) cited, though 1,800 granulocytes, if functionally mature and efficient, have more frequently than not been found to be above the critical level for the development of clinical symptoms. A continued search for some causative factor or factors outside the bone marrow is therefore indicated, as for example in the liver, spleen or lymph nodes.

Liver extract and yellow bone marrow are reported to have stimulated granulopoiesis in a limited number of patients, but the rationale of this therapy is not yet clear. The marrow thus far used has been made up in capsules in the laboratories conducting the observations. Leukopenia secondary to megalo-

blastic hyperplasia, as in pernicious anemia, is, of course, automatically relieved by liver following the restoration of normal erythroblastic marrow, but this is not due to any direct effect on granulopoiesis. The late Roger Morris and his associates have reported a leukopoietic fraction in hog gastric juice capable of mobilizing granulocytes; but only a very limited number of observations have been made thus far and more fundamental studies under controlled conditions in animals must be awaited before this can be fully accepted.

The nucleotides have been administered daily to animals for as long as four months with a maintained elevation of granulocytes throughout this period. Clinically, however, it has not been necessary to maintain the administration of nucleic acid products indefinitely.

The mechanism of hematopoiesis is so complex that it is essential to differentiate sharply between a great variety of leukopenic states of widely divergent etiology, if the problem of the individual patient is to be solved satisfactorily.

DIFFERENTIAL DIAGNOSIS IN ARTHRITIS OF SPINE

To the Editor:—A white man, aged 29, seen in May 1934, complained of pain in the sacro-iliac region and inability to stoop or get up from a stooping position. This complaint had been present for two days. The past history was negative except for gonorrheal urethritis ten years previously, treated for one month and apparently cured, and a fall from a pole in January 1933. He was working strapped to the pole when the strap broke and he slid down the pole about 20 feet, striking the ground in a sitting position. At this time he made three visits to the doctor because of low back pain. This pain recurred at intervals but caused no loss of time from work until the onset of the present illness. Physical examination is negative except for extreme tenderness over both sacro-iliac joints, considerable enlargement and tenderness of the prostate, and almost pure pus expressed from the prostate gland. He was treated with sodium salicylate, 10 grains (0.65 Gm.) every four hours, strapping of the back, hot baths, and prostatic massage twice weekly. On this treatment he improved and the prostate returned to normal size, but the prostatic fluid was still loaded with pus after four weeks' treatment. At this time vaccine therapy was suggested and the patient did not return for further treatment. When next seen, September 1, the back pain had recurred, and pain and tenderness were present over the course of the left sciatic nerve. He was confined to bed. The prostate was of normal size but the fluid contained many pus cells. The urine contained mucus and pus cells. Roentgen examination, September 4, with anterior, posterior and lateral films, showed no evidence of bone changes or traumatism of the spine. The patient was then referred to an orthopedist, who placed him in a body cast for six weeks. This gave him complete relief from the symptoms. The prostatic massage was resumed and the fluid still contains many pus cells but they are much decreased, estimated at about 200 cells to each low power field. Roentgen examination about November 20 by another roentgenologist showed no definite evidence of arthritis of the lumbar spine or sacro-iliac region. The articular facets between the fifth lumbar vertebra and the top of the sacrum were assymetrically placed. All the inferior facets of the lumbar vertebrae were unequal on the two sides. The left inferior articular facet of the third lumbar vertebra and the right articular facet of the second lumbar vertebra were in two pieces. The roentgenologist believed that there was a slight anterior slipping of the body of the fifth lumbar vertebra on the top of the sacrum. The orthopedist does not agree with the roentgenologist regarding the slipping of the fifth lumbar vertebra. Prostatic smears were negative for gonococci. Pus cells and gram-negative cocci were found. The orthopedist is of the opinion that this disability is due entirely to the trauma incurred in the fall in January 1933. He bases this opinion partly on the fact that gonorrheal arthritis does not attack the spine or sacro-iliac joints as a rule. I am of the opinion that this is an infectious process, probably aggravated by the fall. Which opinion do you think is most likely true? Please omit name.

M.D., Ohio.

ANSWER.—The important question involved is the question of trauma plus infection which can produce chronic arthritis. The injury localizes the focal infection in the spine. The spine may or may not have been involved before the trauma.

Trauma plus a chronic gonococcic infection can produce ankylosing arthritis involving the articular facets. As a matter of clinical experience, gonococcic infection appears to have a predilection for the spine of young men.

If in the oblique roentgenographic projection the facets appear to be ankylosing, one might assume an infectious etiologic factor, of which group the gonococcus is a classic example.

One may be dealing here with a nonspecific vesiculitis, in which connection the use of Pregl's solution of iodine has been recommended. This treatment, or any more appropriate treatment, should be administered by a competent urologist.

The question of spondylolisthesis should be determined by a careful examination of the relationship of the lumbar spine, especially the fifth to the sacrum, as presented in a lateral view. In this connection the so-called Ullman's line erected parallel with the anterior border of the first sacral segment should not cut off any of the inferior anterior portion of the fifth lumbar vertebra.

INITIAL INFECTION IN SYPHILIS

To the Editor:—A woman, aged 21, single, presented herself to me with the chief complaint of nausea not related apparently to meals or to any particular time of day. General examination revealed no organic ailment, but the blood examination showed 4 plus Kahn and Wassermann reactions. The history was negative for any past primary or secondary lesions. Repeated laboratory tests of the blood merely verified the original result. Antisyphilitic treatment was begun in May 1933 and has been continued up to the present with but one month's interruption. From May 1933 to June 20, 1933, she received eight injections of neoarsphenamine of 0.6 Gm. each at weekly intervals. Then up to Oct. 1, 1933, twenty-four intramuscular injections were given of 2 cc. of bismuth sodium tartrate. Then up to the present time the patient has received one injection of neoarsphenamine, 0.6 Gm., and one intramuscular injection of the bismuth preparation, 2 cc. each week. The total bismuth injections for the total period numbered about sixty-four and the total neoarsphenamine injections forty-two. Repeated blood tests have shown no change whatever with the exception of a slight reduction in the quantitative Kahn units. I should like expressions from you as to how this patient received her initial infection, considering the fact that the past history was negative, and considering also that the patient happened to be a very intelligent graduate nurse. Further, I should like to have an opinion on how the future course of treatment should be planned and what prognosis could be given as to cure. Please omit name.

M.D., Missouri.

ANSWER.—History, particularly in the woman with syphilis, is a conspicuously unsatisfactory way of determining the origin of a syphilitic infection. Even an intelligent graduate nurse has eight inches of genital tract wholly inaccessible to her own observation, and the observations of Amwyl-Davies tend to indicate that genitally acquired infections in women frequently begin with a cervical chancre. She may have been the victim of a misinterpreted extragenital infection masquerading as herpes, tonsillitis or diphtheria. She may be the victim of a prenatal syphilitic infection and the inquirer's statement gives no particulars suggesting that this possibility had been investigated by clinical examination. If she has an acquired infection at least a spinal fluid examination should have been performed early in the course of the treatment described to determine whether or not the persistent positive blood serologic tests were features of a central nervous system involvement or not.

It is impossible to discuss further treatment or prognosis without the details of an adequate clinical examination and an examination of the spinal fluid. If the case turns out to be one of completely asymptomatic latency, the treatment already given approximates and in fact exceeds the standard set by the Cooperative Clinical Group in this country for the management of asymptomatic latency. Should the patient desire to marry and have children, the whole situation would be subject to reinterpretation in the light of adequate examination.

NUMBNESS OF FINGERS DURING PREGNANCY—DEATH IN COMA

To the Editor:—1. I have a patient who has a numbness of the middle three fingers on her right hand. This is felt chiefly at night when she lies down. After the hand has become numb for a time it begins to ache. The most peculiar thing about it is the fact that she has it only when she is pregnant. It begins to bother her about the fourth month and then continues on through pregnancy. There are no foci and she is not a hysterical patient. She does have considerable gas; otherwise the examination is negative. The pain does not respond to hot packs or to any of the salicylates. What would you recommend? 2. My next question concerns a woman, aged 46, who died in coma, the coma lasting seventy-two hours. She had had heart trouble for twenty years. She had a severe chronic interstitial nephritis but no hypertension. The phenolsulphonphthalein test showed 40 per cent and her urea nitrogen was 20. There was no sugar in the urine on repeated examinations. She had no convulsions, and at no time did she have Cheyne-Stokes respiration. Her final illness began with a heart attack. She became very weak, unconscious and pale. I gave her some caffeine sodiobenzoate and she became conscious for a short time. At this time she thought she saw her husband, who was away at the time. In a few hours she went into I would say a light coma. She opened her eyes at intervals and it appeared that she could see a person in her line of vision. I fed her through a nasal tube for about sixty-eight hours and catheterized her every twelve hours until she had incontinence. The last thirty hours her lungs filled with congestion, which finally caused her death. What caused this coma? Her heart did not seem to give out. (She was completely digitalized.) Please omit name.

M.D., Nebraska.

ANSWER.—1. Numbness of the middle three fingers does not correspond to the distribution of the peripheral nerves. The fact that the numbness comes only with the patient in the recumbent position suggests that pressure or posture may be a factor. Since the complaint is present only during pregnancy, however, the diagnosis is complicated. Numbness or paresthesia is usually an early symptom of peripheral neuritis, of combined sclerosis in pernicious anemia or of cerebral arteriosclerosis. In many cases no organic cause is found. Neuritis in pregnancy

has been described, but the fact that in this case numbness follows no nerve distribution and is not associated with pain seems to eliminate this etiologic factor. Deficiencies in calcium metabolism during pregnancy, with neuromuscular disturbances, are not uncommon. Administration of calcium and viosterol could be tried. It would be well to determine whether the pulsations are normal in the peripheral arteries and whether there is diminished circulation during the periods of numbness. This can be determined by the presence of reduced temperature of the affected fingers. The fact that this condition has persisted for a period of years without evidence of primary disease or serious sequelae would rather incline one to believe that it is an expression of a functional disorder rather than any organic complaint. No special treatment seems indicated if primary disease is not found. Relief of the anxiety associated with the complaint is often effective.

2. The data indicate that renal function was fairly adequate and was not the basis of the coma. The patient's age (46 years) suggests two possible causes of coma and death: (1) cerebral embolism, if valvular heart disease was present, or (2) some primary cerebral disease, such as thrombosis of an artery or acute encephalitis. Coma seemed to predominate in the terminal picture. This is rare in coronary thrombosis or in acute cardiac death. The absence of precordial pain is against this diagnosis. The usual causes of coma of renal or diabetic origin or from drug poisoning seem in this case to be ruled out. The most rational explanation is some cerebral basis, probably encephalitis.

CONVULSIVE SEIZURES IN INFANCY

To the Editor:—A boy baby, aged 5½ months, has had convulsive seizures for one month. The spells last usually not over one minute and may be as frequent as from three to eight attacks in twenty-four hours, with periods of freedom from attacks for as long as ten days. A typical spell is ushered in by a sort of overexcited period of a few seconds followed by an expression of distress, rapid, shallow respirations, apparent loss of consciousness (variable) lasting half a minute, then a muscular convulsion of the whole body lasting a few seconds, and then relaxation, drowsiness and fretfulness. The parents can recognize the first symptoms and the procedure can be stopped by giving the child a warm bath. The personal history is that of a normal, spontaneous, full term birth, normal gain in weight, and no other diseases. The convulsions have no effect on the gain in weight; there is no fever. Belching usually follows an attack. The child is on breast milk, orange juice, halibut liver oil and cereals. Physical examination is entirely negative, including the facialis symptoms of Chvostek. Two lower incisor teeth are about to erupt. The urine was strongly alkaline and was acidified, but the spells continued. The child's older brother had what is described as the same condition from the age of 3½ to 11½ months. He was taken to many specialists and clinics and no cause ever was found. He recovered spontaneously and now is normal, at the age of 4 years. There is no history of convulsions on either side of the family for three generations. The baby's mother has been in the habit of giving him sodium bicarbonate water several times a day on general principles. I had that practice stopped and administered very weak hydrochloric acid water until the urine became acid. This apparently had no effect on the convulsions, but it has been only two weeks since this was accomplished. The child has a tendency to constipation. Do you think alkalosis can explain these attacks? What prognosis do you offer? A recent telephone call advises me that convulsions have not occurred for four days. EVAN B. HUME, M.D., Menard, Texas.

ANSWER.—The most frequent causes of repeated convulsions at the fifth month of life are tetany, cerebral hemorrhage, acute infections and epilepsy. Other causes, such as tumor or abscess of the brain, imperfect cerebral development and hypoglycemia, should also be included. Convulsions in infancy during the first three or four months of life are usually organic in nature and are due to increased cerebral pressure from hemorrhage or injury to the brain, or to asphyxia from atelectasis. In the age group after the first few months of life up to 2 years of age, tetany is the most common cause of convulsions.

In the case in question, although the Chvostek sign is negative, further examinations, such as Trousseau's symptom, the altered electrical reaction described by Erb, and a chemical blood test to determine whether a lowered blood calcium content exists, should be undertaken to rule out tetany as a cause of the convulsions. To rule out other organic causes, examination of the spinal fluid and eyegrounds should be made, to determine whether increased intracranial pressure from tumor, abscess, traumatic injury or maldevelopment of the brain might be the cause of the convulsions. A blood sugar examination would reveal the hypoglycemic origin of the convulsions.

A severe degree of alkalosis might be the cause of the convulsions, though other symptoms, as nausea, vomiting and stupor, are absent. While the urine may be alkaline in alkalosis, it need not be so. Laboratory examination of the blood, to determine whether the carbon dioxide content and p_H are increased, will show whether a state of alkalosis exists.

Finally, if all organic causes are ruled out, petit mal or minor epilepsy must be considered as a cause of the convulsions. These attacks may be of short or momentary duration, accompanied by muscular twitching, and may recur several times a day, or they may occur at longer intervals. The prognosis depends on the diagnosis in such a case. If the convulsions are due to organic brain disease, the extent and nature of the involvement would decide the prognosis. If the convulsions are due to tetany, suitable treatment would offer a cure. The question states that the infant is receiving halibut liver oil. This substance contains considerable amounts of vitamin A but is rather low in vitamin D. A sufficient amount of vitamin D in the diet would insure against a recurrence of tetany. Epileptic convulsions can be controlled, and perhaps outgrown in later childhood.

CHRONIC POSTERIOR URETHRITIS

To the Editor:—This may be an example of how not to treat gonorrhea, but perhaps you can give me some advice. The patient is a white man, aged 45, divorced. Gonorrhea first occurred at the age of 21. The present infection occurred in October 1933. I saw him about a week after the discharge began and made a diagnosis of acute posterior urethritis. I gave him a hyoscyamus-potassium citrate prescription to be alternated with methenamine. Acetylsalicylic acid was used for pain. He was advised to go to bed and use hot sitz baths but because of economic and general living conditions could not do this. His discharge and painful urination persisted about two months and then almost cleared. In December 1933 he had three abscessed teeth extracted. Following this the discharge and pain returned in extreme form. A generalized edema developed and an epididymitis. Drugs of every sort were tried without any relief. Shortly afterward he began to have bladder spasms and to pass varying quantities of pure blood at the end of urination. I took him to a urologist, who advised irrigations, followed later by prostatic massage. Irrigations were tried but caused an increase in the severity of the symptoms. He was hospitalized for some time. Cystoscopic examination was attempted but failed. Guinea-pig inoculations showed no tuberculosis, although his discharge diagnosis was tuberculosis of the prostate. He is still having the bladder spasms, from two to ten a day. He urinates about every fifteen minutes and passes occasional blood clots. The spasms are relieved more quickly if he can pass a clot. Recently he passed about 8 ounces of blood through the urethra and an undetermined quantity by rectum. Prostatic examination is unsatisfactory owing to the extreme pain. Smears of pus show large numbers of gonococci and cocci resembling staphylococci. The only drug that will give any relief is morphine and that is not very satisfactory. I have used vaccines with questionable results. Catharsis relieves some, probably through reduced urinary output. Is there any chance that foreign protein injections may aid? What courses of treatment would you suggest. Please omit name. M.D., Indiana.

ANSWER.—It is probable from this case history that one is dealing with a chronic posterior urethritis, probably entirely secondary to a specific prostatovesiculitis. One should suspect bullous edema or polyp formation in the posterior urethra or on the vesical neck when there are bladder spasms and hematuria.

In spite of the severe symptoms and the gonorrheal infection, it is imperative to do cysto-urethroscopy in order to make a proper diagnosis. This would also exclude the possibility of double lesions, such as cancer and gonorrhea or contracture of the vesical neck and gonorrhea. If the bladder and its outlet are without pathologic change, ureteral catheterization should be done to exclude chronic gonococcic pyelonephritis or pyonephrosis and other kidney lesions. Cystoscopy could be done easily by means of caudal injection of 20 cc. of 1:1,000 nupercaine solution.

One can use cystoscopic fulguration for inflammatory tissue tags, polyps or bullous edema. Following this procedure the patient should take one 10 minim (0.6 cc.) capsule of santal oil after each meal and at bedtime. He should take a ten minute sitz bath every morning and evening. His fluid intake should be moderate. A scrotal supporter should be worn. It is advisable to have the patient inject the anterior urethra every morning and evening with 5 per cent neosilvol solution, holding the medicine in the urethra for five minutes.

One week of this management should improve the patient enough to allow a moderate stripping of the seminal vesicles and prostate gland, after which a 5 per cent solution of mild silver protein should be instilled into the bladder, posterior urethra and anterior urethra by means of a small Guyon instillator. This procedure should be carried out every five days. About the third week, one should begin to alternate the passage of urethral sounds with the massages every five days. There would be little value in the use of foreign protein.

If improvement has not taken place after a proper period of the foregoing management, one should consider bilateral vasostomy with injection of 5 per cent collargol solution into the seminal vesicles to help rid them of infection.

BRONCHIAL ASTHMA

To the Editor:—I have under my care a case of bronchial asthma in a young unmarried woman who has had severe attacks only on visits to Boston, which usually occur in the last week in December. Such attacks have occurred on visits as early as November and as late as February. Her home is in Washington, D. C., where she has never had an attack of asthma. Her visits to Boston last about a week, during which period she is severely ill but recovers within two days after leaving. The patient makes visits to the same area every July but has only a slight attack at such times. Close questioning has elicited no significant information with regard to animal contacts, food, bedding, house dust, and so on. Please advise what allergens should be used in skin tests. Please omit name.

M.D., District of Columbia.

ANSWER.—The fact that the attacks of asthma come only in the winter months rules out pollen sensitivity. This leaves for consideration only foods, epidermal substances, drugs and miscellaneous antigens, such as orris root, cottonseed and flaxseed. Bacterial allergy is possible but unlikely.

It is suggested that the history be rechecked, especially with relation to exposure to animals either at the home in Boston or in the homes of friends in that city. Sufficient contact may be had by visiting such homes or by carrying animal hair and dander from houses in which animals live. In addition, any unusual foods should be noted; any unusual drugs should be checked, as amidopyrine, acetylsalicylic acid and quinine; one should look for exposure to unusual cosmetics, as in beauty parlor treatments. The pillows and mattress should be examined to see whether they contain hair or feathers. Because of the frequency of sensitivity to hair, feathers, cottonseed and dust of mattresses and pillows it would be safer to cover these with light rubber sheeting, sewed in securely.

Complete skin tests should be carried out, including all known antigens. It is unwise to do partial testing, as the antigens omitted may turn out to be the important ones.

It is suggested also that the bedroom in Boston be thoroughly gone over with a vacuum cleaner so as to eliminate as much dust as possible.

"INCONTINENT AND INVOLUNTARY"

To the Editor:—Please give me the proper words to use in describing involuntary action of the bowels and bladder. Is "incontinent" or "involuntary" good or are there better terms?

J. L. PRITCHARD, M.D., San Jose, Calif.

ANSWER.—The word "involuntary" refers to an act that is performed independently of the will. The word "incontinent" is used when a patient is unable to restrain natural evacuations; normally all persons are continent because they can control the action of the bladder or the bowel. The patient is incontinent because he is unable to restrain his natural evacuations. The action on the part of the bladder or bowel is involuntary. The patient is incontinent.

HAZARD OF INHALING DUST

To the Editor:—Does the dust inhaled in the grinding of casein hardened with formaldehyde constitute a known industrial hazard?

CHARLES B. F. GIBBS, M.D., Rochester, N. Y.

ANSWER.—The hazard of inhaling such dust is from traces of the formaldehyde that has not reacted with the casein, and the effect is typical of that from low concentrations of formaldehyde vapor. The buffing, polishing and grinding of these casein-formaldehyde condensation products should be done under adequate exhausts that prevent the dissemination of the formaldehyde vapors.

CASTOR OIL AFTER SANTONIN

To the Editor:—The staff here disagrees as to the advisability of using castor oil immediately after the use of santonin. Some claim that the use of oil makes santonin toxic. Please advise. Kindly omit name.

M.D., Georgia.

ANSWER.—Castor oil does not increase the absorption of santonin. The castor oil may be given immediately after the santonin or even combined with it.

ALKALINE RESIDUE DIET

To the Editor:—What articles of diet can be used to make an acid urine alkaline; an alkaline urine acid? Please use initials only.

M.D., Minnesota.

ANSWER.—Articles of diet that leave an alkaline residue are fruits (except cranberries, prunes and plums), vegetables, beans, peas and milk. Those which are acid producing are meats, fish, eggs, cereals and the fruits mentioned as exceptions.

Medical Examinations and Licensure

COMING EXAMINATIONS

ALABAMA: Montgomery, June 24-26. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Oral (Group A and Group B candidates).* New York, June 10. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Final oral and clinical examination (Group A and Group B candidates).* Atlantic City, N. J., June 10-11. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 8, and New York, June 10. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 10, and St. Louis, Nov. 19. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 7-8. Sec., Dr. Walter Freeman, 1726 Eye St. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 8-10. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

ARIZONA: *Basic Science.* Tucson, June 18. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical.* Phoenix, July 2. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: San Francisco, July 8-11 and Los Angeles, July 22-25. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 2. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, June 8. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical.* Hartford, July 9-10. *Endorsement.* Hartford, July 23. Sec., Medical Examining Board, Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: June 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: Washington, July 8-9. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 17-18. Sec., Dr. William M. Rowlett, P. O. Box 786, Tampa.

GEORGIA: Atlanta and Augusta, June 11-12. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, July 8-11. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

ILLINOIS: Chicago, June 25-28. Address, Department of Registration and Education, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, Room 5 State House Annex, Indianapolis.

IOWA: Iowa City, June 4-6. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 18-19. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 5-7. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Augusta, July 2-3. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MARYLAND: *Regular.* Baltimore, June 18-21. Sec., Dr. John T. O'Mara, 1211 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 11-12. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 9-11. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 144 State House, Boston.

MICHIGAN: Detroit, June 5-7, and Ann Arbor, June 11-13. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, June 4-5. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, June 18-20. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June 25-26. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 12-14. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination, June 24-26 and Sept. 16-18. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: Omaha, June 11-12. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 24-27. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton. Room 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 10. Sec., Dr. Benj. J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 2-5. Sec., Dr. G. M. Williamson, 4½ S. 3d St., Grand Forks.

OHIO: Columbus, June 4-7. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 5-6. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PENNSYLVANIA: *Written.* Philadelphia and Pittsburgh, July 9-11. *Bedside.* Philadelphia, July 12-13. Dir., Bureau of Professional Licensing, Mr. W. M. Denison, 400 Education Bldg., Harrisburg.

RHODE ISLAND: Providence, July 2-3. Dir., Department of Public Health, Dr. E. A. McLaughlin, 319 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TENNESSEE: Knoxville, Memphis and Nashville, June 13-14. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, June 18-20. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

UTAH: Salt Lake City, July 8-10. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 26-28. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 19-21. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.
WEST VIRGINIA: Clarksburg, July 8. State Health Commissioner, Dr. Arthur E. McClue, Charleston.
WISCONSIN: *Basic Science.* Milwaukee, June 1. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Milwaukee, June 25-28. Sec., Dr. Robert E. Flynn, 401 Main St., LaCrosse.

Alabama January Examination

Dr. J. N. Baker, secretary, Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, Jan. 8-10, 1935. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Ten candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1934)	84.2, 88.7
Rush Medical College		(1934)	91.3*
Tulane University of Louisiana School of Medicine		(1934)	82.7, 83, 85.8, 89.2
Johns Hopkins University School of Medicine		(1928)	85.8
Duke University School of Medicine		(1933)	86.3
University of Pennsylvania School of Medicine		(1934)	88.4

* This applicant has received a four-year certificate and will receive an M.D. degree on completion of internship.

Arizona Reciprocity Report

Dr. J. H. Patterson, secretary, Arizona State Board of Medical Examiners, reports two physicians licensed by reciprocity at the meeting held in Phoenix, Jan. 2-3, 1935. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1932)	Illinois
Dalhousie University Faculty of Medicine		(1928)	Nova Scotia

Ohio Reciprocity and Endorsement Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports 20 physicians licensed by reciprocity and 2 physicians licensed by endorsement at the meeting held Jan. 8, 1935. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine		(1933)	Missouri
Loyola University School of Medicine		(1932)	Illinois
Indiana University School of Medicine		(1909)	Indiana
Univ. of Michigan Med. School (1927), (1932, 2),		(1933, 2)	Michigan
Wayne University College of Medicine		(1934)	Michigan
St. Louis University School of Medicine		(1927)	California, (1932) Missouri
University of Buffalo School of Medicine		(1928), (1929)	New York
Jefferson Medical College of Philadelphia		(1929)	Penna.
Temple University School of Medicine		(1932)	Penna.
University of Pennsylvania School of Medicine		(1926)	W. Virginia
University of Pittsburgh School of Medicine		(1933)	Penna.
Queen's University Faculty of Medicine		(1898)	Illinois
McGill University Faculty of Medicine		(1922)	Michigan
University of Moscow Faculty of Medicine		(1914)	*New Jersey

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School		(1927), (1933)	N. B. M. Ex.

* Verification of graduation in process.

South Dakota January Report

Dr. Park B. Jenkins, director, Division of Medical Licensure, reports the oral, written and practical examination held in Pierre, Jan. 15-16, 1935. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. Six physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Physicians and Surgeons of Chicago		(1893)	85
Rush Medical College		(1919)	87
University of Illinois College of Medicine		(1933)	87
University of Minnesota Medical School		(1933)	85
Washington University School of Medicine		(1932)	90
Creighton University School of Medicine		(1930)	83

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
State Univ. of Iowa Coll. of Med.		(1886), (1931),	(1933) Iowa
Boston University School of Medicine		(1930)	Iowa
University of Nebraska College of Medicine		(1926)	California
Universität Rostock Medizinische Fakultät, Germany		(1919)	N. Dakota

Book Notices

Surgical Diseases of the Chest. By Evarts Ambrose Graham, A.B., M.D., F.A.C.S., Professor of Surgery, Washington University School of Medicine, St. Louis, Jacob Jesse Singer, M.D., F.A.C.P., Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis, and Harry C. Ballon, M.D., C.M., F.A.C.S. Cloth. Price, $15. Pp. 1070, with 637 illustrations. Philadelphia: Lea & Febiger, 1935.

For some time physicians have been eagerly awaiting the appearance of this book. They have been looking forward to it for two reasons: In the first place, there has been a definite need for a book on surgical diseases of the chest in which the medical aspect is emphasized. In the second place, a book by these authors, who have themselves been in the front line of the advance in the progress of chest surgery, should be a good one. Now that the book is available, there is no disappointment on either count. From the first paragraph of the introduction to the last chapter, which describes the set-up of the Barnes Hospital Chest Clinic, the book definitely deals with surgical diseases of the chest from the clinical point of view. This does not mean that operative technic and proceedings are not fully described but does mean that physiology, pathology, diagnosis and other factors which every good surgeon must take into account in acquiring a well rounded knowledge of the subject are given ample consideration.

As might be expected, the experimental side of many of the problems in chest surgery has been dealt with, sometimes at length, sometimes briefly. Many of the chapters are actually monographs on the subject rather than the usual subdivision of most textbooks. The text is profusely illustrated not only with diagrams, photographs and roentgenograms but also with case histories and records of patients. In spite of the addition of many subjects often omitted from the telegraphic form of school books, the subject matter is most accessible. This is due to the excellent indexing and the boldface captions that introduce the various paragraphs. The reader who is seeking for some particular phase of any subject can tell at a glance whether or not this or that paragraph will give him the information he wants.

Helen Lamb, chief anesthetist to the Barnes Hospital, has written the pages devoted to endotracheal and endopharyngeal anesthesia.

David H. Ballon, lecturer on otolaryngology at McGill University Faculty of Medicine, has written chapters having to do with bronchoscopy. Ralph Matson, whose contributions in the field of intrapleural pneumolysis have been noteworthy, has presented this subject, while Dr. Roy Matson, since deceased, has written the chapter on oleothorax. A large bibliography on each subject has been appended.

The authors in the preface state that their aim has been to prepare a book "which should appeal both to the internist and to the surgeon. The appeal to the former seems to be particularly desirable because even now there is an insufficient appreciation . . . of the accomplishment of thoracic surgery and of the help in many conditions which a surgical attack offers." They have well accomplished their purpose. This book will be used as the standard text and reference work in surgical diseases of the chest in all medical schools.

Das Extremitäten-, Thorax- und Partial-Elektrokardiogramm des Menschen. Eine vergleichende Studie. Von Prof. Dr. Franz Maximilian Groedel, Direktor des William G. Kerckhoff-Herzforschungs-Instituts zu Bad-Nauheim. Band I: Text; Band II: 200 Tafeln. Cloth. Pp. 358, with 334 illustrations; 200 plates. Dresden & Leipzig: Theodor Steinkopff, 1934.

In this monograph the author summarizes his experiences with electrocardiography, especially the newer angles with which he and his associates at Bad Nauheim have recently concerned themselves. It is a highly involved presentation, suited only to the advanced scholar in electrocardiography. This being the case, many of the simple expositions employed by the author in connecting the various portions of the book are unnecessary. The major theme of the presentation is the author's attempt to prove that he has finally been able to determine the true partial electrocardiogram of the right side and of the left side of the heart. This is based on the erroneous belief that the two sides can be conceived as being separated by a dielectric. The right partial electrocardiogram he obtains

by connecting the negative terminal to the right arm and the positive just to the left of the sternum at its midpoint. The left partial electrocardiogram he obtains by connecting the positive terminal to the chest in the left axillary line at the level of the xiphoid process. The evidence presented to show that these leads have finally solved the so-called partial electrocardiogram of each heart is far from convincing. The author's wish seems to be father to the proof. The most valuable part of the book is the author's succinct summary of the more interesting developments in the fundamental studies of the electrical field which his associates have carried out and published. The author errs seriously in ignoring or in dismissing casually the recent fundamental developments that have come from several laboratories in this country, most of which antedate the work presented in the monograph. His casual dismissal of the so-called fourth lead as practiced in this country is unwarranted. In fact, his curves will be useful in advancing the practical use of precordial leads. His curves are the inverse image of those published with precordial leads in this country. He presents a collection of carefully coordinated electrocardiograms obtained from these precordial leads, together with the classic three leads, analyzed x-ray projection of the heart and brief case histories obtained in a large number of normal subjects and patients with heart disease. The present tendency growing among experimental cardiologists to return to the original concept of Waller on the nature of the electrical field and to drop the classic interpretation of the Einthoven triangle is well exemplified in this book. The unwarranted deductions included can be readily excused on the basis that this work was brought to an abrupt close by exigencies over which the author had no control. For the investigator in this field the original protocols will be extremely useful, but the reader should not be swayed by the interpretations as far as the author carries them.

Memoirs of a Small-Town Surgeon. By John Brooks Wheeler, A.B., M.D., Sc.D. Cloth. Price, $3. Pp. 336, with 4 illustrations. New York: Frederick A. Stokes Company, 1935.

This is an account of a fortunate life. John Brooks Wheeler got his college education at the University of Vermont. He graduated from Harvard Medical School in 1879, had an internship in the Massachusetts General Hospital, and, preferring to live in a small city rather than a large one, went back to his home, Burlington, Vt., where he spent a long professional life. In addition to having the attractions of a prosperous town of 20,000 people, beautifully situated in the hills of Vermont, it had the professional advantages of having a hospital — the first between Albany and Montreal — and the Medical School of the University of Vermont.

The book is agreeable reading from beginning to end. The author gives an instructive discussion of medical education in the late seventies, when Harvard and the Chicago Medical College were the only schools in the country having a graded course or a three years compulsory course. He reviews the condition of surgery with the eyes of one who has seen the evolution of modern surgical technic, and he describes in retrospect the surgery of the late seventies and eighties, when the older generation of surgeons were struggling in a half-hearted or awkward way to practice antiseptic surgery. He gives an interesting picture of the Harvard Medical School of his day and of the notables on its faculty, Oliver Wendell Holmes, Henry P. Bowditch, Henry J. Bigelow, David W. Cheever, Reginald W. Fitz and others. One gets the impression that he regarded Fitz as perhaps the leading physician in the faculty. Wheeler spent eighteen months at the Massachusetts General Hospital, and he gives an interesting and pleasing account of the hospital in those days. He saw its many defects, but on the whole he shows that it was a well conducted institution, with high ideals, and was a fine place for interns. He was on the surgical service, and Bigelow and Charles B. Porter were the most prominent surgeons. He regards Porter as one of the two or three best surgical operators that he has ever seen, and in all ways an able surgeon. Bigelow was the notable surgeon in New England and among the most famous in the country at that time. Wheeler paints Bigelow as a very able surgeon; he uses the word "genius" in connection with him, which probably is not deserved. Bigelow was of the pompous old great surgeon type, and what with his vanity, manifest ostentation, arrogance and self importance does not appear altogether as a pleasant human character.

Then Wheeler went to Europe for a year and a half, where he had the familiar and useful experience of American students who were fortunate enough to go to Vienna at that time. He gives pleasant glimpses of the life of the American students in Vienna, of the postgraduate training they got there and of the personalities. He then returned to Burlington to practice. He gives an interesting discussion, with reasons that would appeal to a wise man, for settling in a smaller city such as Burlington.

The second half of the book is devoted to his experiences as a surgeon for fifty years spent in a busy and useful practice. It is the familiar story heard so often from other able men similarly situated, and Wheeler tells it well. As a physician reads it he gets the feeling of pride in his profession that is always stimulated by the accounts of such careers. Wheeler has led a singularly fortunate life. His youth in medicine was spent in wholesome and happy surroundings, and his later career has been similarly circumstanced. He has been able, effective and successful. In retrospect he looks at his life with wisdom and optimism, and it makes his account instructive and refreshing reading.

Sang et organes hémopoïétiques. Par A. Touraine, médecin des hôpitaux de Paris. Paper. Price, 30 francs. Pp. 275, with 21 illustrations. Paris: Masson & Cie, 1934.

This volume is one of a series on the subject of diagnosis and treatment of the various specialties in medicine. The purpose of the work is to develop enough fundamental information so that the novice will clearly understand the methods by which diseases are recognized and rationally treated. Hematology lends itself nicely to this purpose since, through the study of the blood-forming organs, the general reactions of the body against disease may be evaluated. The work is presented in a clear and simple manner and is addressed particularly to the medical student. The author has made a definite effort to simplify the controversial terminology in the belief that it is often this phase of the subject that discourages beginners. A concise but thorough discussion of normal blood and its formation is presented with later treatment of blood in pathologic states. The book is well organized and should be of great value to those interested in a short account of the elemental aspects of diseases of the hematopoietic organs and the practical aspects of modern clinical and therapeutic methods in hematology.

Illustrative Electrocardiography. By Joseph H. Bainton, A.B., M.D., Attending Physician and Chief of the Cardiac Clinic, Morrisania City Hospital, New York City, and Julius Burstein, A.B., M.D., Associate Electrocardiographer, Morrisania City Hospital, New York City. Cloth. Price, $5. Pp. 258, with 100 illustrations. New York & London: D. Appleton-Century Company, 1935.

This work is an atlas of electrocardiograms. A total of 155 are shown, well reproduced at a reduction to two thirds in size. The only text is a short but concise description accompanying each tracing. The more frequent abnormalities are shown in the most detail, so that greatest emphasis comes on conduction abnormalities and changes in the T waves. A valuable section shows serial tracings made during acute infections, as pneumonia, typhoid and rheumatism. Also serial tracings show the changes due to digitalis action in a variety of abnormalities. Serial tracings after coronary occlusion are shown in detail. There is no mention of technical or mathematical concepts. No controversial material is included. The common sense view of the authors is well exemplified in this paragraph: "The record, therefore, represents an activity which depicts the variations of normal or pathological physiology and is never direct evidence of structural defect. . . . It has been found that characteristic changes occur in the electrocardiogram with fair regularity in the presence of certain definite structural lesions and rarely with any other lesion. A definite pathological diagnosis, however, is justified only in the presence of additional evidence obtained from the history and the physical signs." The book is of much value in assisting the detailed study of tracings, yet it constantly sends the physician back to the study of the patient for the last word.

Pflanzliche Therapie. Eine Anleitung mit Beispielen zur Rezeptur. Von Dr. Ernst Meyer, Oberarzt der inneren Abteilung des städtischen Krankenhauses, Berlin-Spandau. Boards. Price, 4.80 marks. Pp. 202. Leipzig: Georg Thieme, 1935.

This is evidence of the recent tendency in Germany to return to the use and study of the herb remedies of the forefathers, with special emphasis on the native herbs. The therapeutic use of herbs, which is being dignified by the special term "phytotherapy," is to be rescued and put into the place it held before the "victorious march of modern chemistry and pharmacology." One cannot charge the author with being narrow or prejudiced, for in addition to the generally accepted and fairly well understood drugs of vegetable origin he overwhelms the reader with mention of dozens of herb products that are claimed to have valuable therapeutic effects. To show that he is not prejudiced, he throws in for good measure the names of dozens of remedies employed by the "biochemist" and the homeopath. The scientific value of the book may be measured by the prescription part, which in addition to remedies of established action advises for the treatment of tuberculosis a tea composed of five different herbs; for kidney stone, a tea composed of four different herbs, which is also the number of different herbs recommended for hematuria and uremia. Compound herb remedies also are recommended for the treatment of chronic arthritis, gastric catarrh and liver disease. The author rescues from medical oblivion the "spring herb cures," presumably for "spring fever." He has more or less complex teas that he recommends for exophthalmic goiter and others for diabetes mellitus. He seems convinced that herb therapy is of great value in neuroses, to judge from the number and complexity of prescriptions recommended. Fortunately, he advises his herb teas in syphilis and gonorrhea merely as adjuvants to other treatment. Even for leukorrhea he advises internal treatment with polypharmaceutic teas (!) and all this as a result of his studies of books on the subject and personal clinical experience of four years (!). Evidently the author, who is the chief physician of the internal medicine department of the City Hospital Berlin-Spandau, believes like a number of other medical men now "prominent" in Germany in progress by retrospection. It is to be hoped that out of this uncritical resurrection of ancient remedies at least one of real value may arise.

The Crippled and the Disabled: Rehabilitation of the Physically Handicapped in the United States. By Henry H. Kessler. Cloth. Price, $4. Pp. 337. New York: Columbia University Press, 1935.

The problem of the care of the crippled and the disabled in the United States involves more than the mere physical rehabilitation of those who can be restored to functional independence through the application of modern medical principles and surgical skill. Education of the public is advised to make the average citizen more cripple conscious and to break down the barriers of psychologic and economic prejudice, which, the author shows, are based on "superstition, misunderstanding and false concepts of capacity to work." There is need for just such a discussion and presentation of facts as are contained in this book. Patients who have been rehabilitated are frequently refused an opportunity of earning their own living even though they may have excellent mental and ample physical capacities for work. Such patients are discouraged by the unfair treatment they have received at the hands of employers who may have contributed to the support of the same hospitals where the cripple received treatment but are unwilling to change a social attitude or legal limitation that prevents the crippled and disabled from earning a livelihood at tasks that he may be able to perform as well as any normal person. Dr. Kessler has handled his subject matter intelligently, sympathetically and forcefully. He has called attention to the crippled representatives of professional and industrial groups who have achieved fame. A careful analysis of the efficiency of the physically disabled as compared to the normal employees of large industrial concerns which are willing to employ people of this class, including the Ford Motor Company, has led to the conclusion that the physically handicapped group are "as productive as normal workers, or even more so." Dr. Kessler has given an analysis of the problem from various angles, including that of the child cripple, the military, industrial and chronic disabled, and the blind, deaf and dumb. The suggested remedy calls for better education of the public with regard to the problem itself, state and national legislation, and better cooperation between various agencies, public and private. This book should be of interest and of genuine help as a source of information for all who are socially minded and especially for those who are concerned with the question of the welfare of the large group of both children and adults who are physically disabled and who must be placed in a position for earning their own living or become public burdens for life. The book is recommended to physicians, sociologists and economists and should be of value to every governor of a state, legislator or congressman who is truly concerned with the present and future welfare of his state and country.

Traité de climatologie: Biologique et médicale. Publié sous la direction de M. Piéry, professeur d'hydrologie thérapeutique et de climatologie à la Faculté de médecine de Lyon. Secretaires de la rédaction: M. Millhaud, assistant d'hydrologie thérapeutique et de climatologie à la Faculté de médecine de Lyon, et R. Van der Elst, docteur ès-lettres, conférencier de l'Institut Catholique de Paris. Préface du Pr. d'Arsonval. In Three Volumes. Paper. Price, 330 francs, per set. Pp. 2664, with 458 illustrations. Paris: Masson & Cie, 1934.

The foundation of nine chairs of climatology in French medical schools in the last ten years indicates the importance given to this subject in France. Voltaire expressed his belief that "the earth and the atmosphere influenced all the products of nature, beginning with man and ending with mushrooms." And Montesquieu had realized that different climates had produced different customs and diverse laws. Perusal of these three splendid and complete volumes on climatology reflects the neglect of this important subject in this country. Three divisions can be distinguished in this treatise. The first on meteorology, physiology and ecology, the second giving a detailed description of the climate of different countries, the third giving clinical aspects of climatic treatment.

The meteorological and physiologic part is generally good and it is convenient to find all such information so collected. The biologic importance of saturation deficit and evaporation rates is stressed, as opposed to the measurement of relative humidity, which is usually given in meteorological data. An interesting discussion is given of the influence of low atmospheric pressure on the organism, but it seems unnecessary to repeat this discussion by five different authors in five different chapters. While these five authors arrive at substantially the some conclusions, two different authors arrive at diametrically opposite conclusions with regard to tropical climates. One holds that a tropical climate is not in itself harmful, but only the tropical diseases, while the other believes that such climate itself has a bad effect on the white race.

While all components of the atmosphere including radioactive gases, products of combustion and bacteria are amply discussed, the presence of pollen in the air is barely mentioned. The extensive American work on pollen distribution during various seasons and in different places is completely ignored. Hay fever and asthma are known to be responsive to climatic treatment, yet in the chapter on "phytoclimatology" no attention is paid to the distribution of plants causing hay fever.

Most of the articles are written by men who are recognized as authorities in their fields, and high standards of scientific accuracy are set. The article by a Russian author on the treatment of tuberculosis by positive and negative ionization of the air by an apparatus of his own invention falls perhaps a little below the standard set by the rest of this monumental work. The same author, in another chapter, tries to explain the succession of liberal and conservative ministries in Great Britain during the nineteenth century by the sunspot activities. The same sun spots are also blamed for alleged influenza epidemics and for almost all social activity since 500 B. C. Such a reductio ad absurdum of the theory of sun spot cycles is hardly to be taken seriously.

The most valuable part of the work is the admirable description of the local climates of France. For every climatological station one finds monthly averages of temperature, rainfall, wind direction and wind velocity, together with a discussion of other advantages. This discussion fills about 500 pages, while the climate of the rest of Europe is described in 180 pages. The climate of the United States is given nine pages. The White Mountains and parts of New Hampshire and Maine are mentioned as resorts for hay fever patients. The Adirondacks and Colorado are referred to for their fame in the cure of

tuberculosis. In connection with the former, Trudeau is said to have had a French-Canadian ancestry, whereas his father was of New Orleans Huguenot stock. In regard to the latter, "the sources of the Colorado" probably refers to Colorado Springs.

All altitudes are given both in feet and in meters, but the author chose 32.25 centimeters as the equivalent of a foot, while 30.48 is the correct value.

Credit is given Davos investigators for the discovery of the increase of lymphocytes in the blood at altitudes, whereas Webb and Williams in this country were the first to make this observation.

These, however, are minor criticisms and the work is invaluable for the enormous amount of information it contains. A glance will tell what weather to expect in a given month at Madeira, Athens or Nice. Physicians who have patients going to Europe and especially to France will be well rewarded for consulting this truly great work.

Hachich: Herbe de folie et de rêve. Par Pascal Brotteaux, docteur en pharmacie. Paper. Price, 20 francs. Pp. 193. Paris: Les Éditions Véga, 1934.

This treatise on cannabis sativa is timely, in view of the interest being taken in the widespread and apparently increasing abuse of cannabis throughout the world. The book is based largely on studies made in northern Africa and in the Near East; but those in the United States interested in investigating the use of marijuana in North America will find in it data useful to them. The author uses the word "hashish" not in its restricted meaning as indicating the particular preparation of cannabis resin called by this name in Egypt, Persia and Turkey but as a general term for all preparations made from cannabis sativa, including not only galenic preparations but also hashish, esrar, madjun, ganja, takruri, kif, dagga, djamba and bhang. He does not treat at any length of the form in which cannabis is used as an addiction drug in the United States and Canada, i. e., marijuana or the dried leaves and resin of flowering tops of Indian hemp that is smoked in the form of cigarets. The book reviews the subject first from the historical point of view and then, separately, in respect of botany and materia medica, chemistry, pharmacodynamics and pharmacology. Methods of treating addiction to cannabis are not discussed, although the subject of mental disorders associated with its abuse is touched on. The book contains a complete bibliography but is without an index. It contains a description of the sensations experienced under cannabis intoxication and of the physical and psychologic effects produced by intoxication. The effect of cannabis intoxication leads the author to conclude that the drug has some value in revealing the content of the subconscious mind. As to its therapeutic uses, the author concludes that exact knowledge is limited and that it would be desirable to restudy the subject, with particular reference to its possible use in psychotherapy.

Traité de physiologie, normale et pathlogique. Publié sous la direction de G.-H. Roger, professeur honoraire de physiologie à la Faculté de médecine de Paris, et Léon Binet, professeur de physiologie à la Faculté de médecine de Paris. Tome V: Respiration. Par MM. Léon Binet, L. Dautrebande, H. Hermann, C. Heymans et Pierre Thomas. Boards. Price, 100 francs. Pp. 474, with illustrations. Paris: Masson & Cie, 1934.

In addition to the usual chapters on the physiology of respiration, this useful volume includes good sections on basal metabolism (forty-nine pages), on therapeutics of respiration (fifty-seven pages), and on nonrespiratory lung functions. The chapter on the nervous mechanism of the respiration by Heyman (fifty-three pages) is particularly superior.

Unemployment Insurance: A Summary of Some Existing Governmental and Private Plans. Monograph One in a Series on Social Insurance. Revised edition. Paper. Gratis. Pp. 81. New York: Metropolitan Life Insurance Company, 1935.

This monograph brings down to date an earlier one published in 1931. The British system, starting in 1911, has been frequently changed. In the early years the changes generally involved extension of coverage and benefits. The limited period of benefit left a large number of unemployed to be cared for by special grants. Recent reorganization and the reduction of unemployment now provides for repayment of the sums advanced for such grants. While unemployment insurance in Germany has existed only since 1927, it also has been revised almost every year. The latest revision and administration of the act excludes "young people in official labor camps" and "unemployed non-Aryans" and "unemployed persons who have exhausted their rights to benefits." As a result "the present unemployment statistics cannot be relied on for accurate information on the situation in Germany." The Danish and Swedish systems depend on national and communal subsidies to trade unions. The monograph contains a survey of recent developments in the United States, including a description of Wisconsin and Ohio plans and proposed national legislation. All important facts also are summarized in extensive analytic tables.

Traité de physiologie normale et pathologique. Publié sous la direction de G.-H. Roger, professeur honoraire de physiologie à la Faculté de médecine de Paris, et Léon Binet, professeur de physiologie à la Faculté de médecine de Paris. Tome VII: Sang et lymphe: Réactions d'immunité. Par MM. Ch. Achard et autres. Second edition. Boards. Price, 120 francs. Pp. 731, with 9 illustrations. Paris: Masson & Cie, 1934.

The standard of this volume is maintained and improved in the present edition. Particularly excellent are the chapters on blood coagulation (100 pages) by Zunz, and on immunity (118 pages) by Bordet. There are good expositions of the blood hemocyanins and blood coagulation of invertebrates, on hemorrhage, on blood transfusion, and on the red bone marrow.

Medicolegal

Medical Practice Acts; Board of Medical Examiners May Prosecute Violators.—The state board of medical examiners of New Jersey instituted this proceeding against Louis Adler, charging him with practicing medicine without a license. Adler was convicted and appealed to the supreme court of New Jersey.

The fact that the medical practice act specifically devolves on district attorneys the duty of prosecuting violations of the act, said the supreme court, does not thereby prohibit the board of medical examiners from prosecuting violators through any other official or attorney. Adler, the court continued, had an office in which he apparently received patients. He was not licensed to practice but he did diagnose physical ailments, prescribe medicines and charge therefor sums clearly indicating that it was for advice as well as for medicine. This conduct, concluded the court, established the fact clearly that Adler was engaged in the practice of medicine within the meaning of the medical practice act. The judgment of the trial court was therefore affirmed.—*State Board of Medical Examiners of New Jersey v. Adler (N. J.), 174 A. 215.*

Hospitals for the Insane: Liability for Suicide of Patient.—The decedent exhibited marked nervousness and his condition became so serious that a neurologist was consulted. The condition was diagnosed as manic-depressive psychosis, accompanied by suicidal tendencies. On the advice of the physician, the decedent was placed in the Blythewood Sanatorium, the defendant in this case. The decedent escaped from the institution and committed suicide. The plaintiff, as administrator of the decedent's estate, sued the defendant sanatorium, and the jury returned a verdict for the plaintiff. A motion to set aside the verdict was denied and the defendant appealed to the Supreme Court of Errors, Connecticut.

From the evidence, said the Supreme Court of Errors, the jury was justified in concluding that the decedent was suffering from a manic-depressive psychosis and that the sanatorium authorities knew, or should have known in the exercise of reasonable care, that there was an ever present danger that the decedent would commit suicide if the opportunity presented itself. The defendant sanatorium contended, however, that it could not be charged with negligence for the reason that the decedent was not committed to its custody by any court, that there was no evidence of voluntary submission to restraint, and that, there being no right on the part of the sanatorium to restrain the decedent, his escape and suicide did not render the defendant liable for negligence. In *Mulliner v. Evangelischer Diakonniessenverein*, 144 Minn. 392, 175 N. W. 699, said the Supreme Court of Errors, it was stated that when

a patient enters a hospital maintained for private profit, he is entitled to such reasonable attention as his safety may require, and that if he is temporarily bereft of reason and is known by the hospital authorities to be in danger of self destruction, the authorities are in duty bound to use reasonable care to prevent such an act. And with the decision of the Minnesota court in the Mulliner case, the Supreme Court of Errors of Connecticut agreed. Even if it were conceded that the sanatorium could not have legally restrained the decedent and prevented his leaving the building, it does not follow, said the court, that the sanatorium was free from negligence in failing to have an attendant with him when he left the institution. The sanatorium had assumed, for a consideration, the duty of keeping the decedent under surveillance and the suicide was the proximate result of its failure to do so. Whether the sanatorium under all the circumstances had failed to exercise reasonable care was for the jury to determine. The court concluded, therefore, that the findings of the jury were not so unreasonable as to call for interference with the verdict and that the trial court did not, therefore, err in refusing to set that verdict aside.—*Hawthorne v. Blythewood, Inc. (Conn.), 174 A. 81.*

Workmen's Compensation Acts: Manifestation of Symptoms of Occupational Disease.—The workmen's compensation act of Connecticut provides that no proceedings for compensation may be maintained unless written notice of claim shall be given within one year from the date of the accident or from the first manifestation of an occupational disease. The employee in this case, Bremner, claimed that when he consulted a physician in January 1931 for a cold and a cough, he believed that he had bronchitis and contended that he did not then actually know that he was suffering from silicosis or from any other disease due to his occupation. On April 29, 1932, Bremner was forced to discontinue work, apparently because of silicosis, and filed a claim for compensation March 15, 1933. The commissioner dismissed the claim on the ground that it was not filed within one year from the date of the first manifestation of symptoms of the occupational disease, contending that such symptoms manifested themselves in January 1931. The commissioner made no ruling on Bremner's claim that he did not actually know that he was suffering from an occupational disease until within a year prior to March 15, 1933. Bremner appealed to the superior court from the commissioner's ruling but died pending the appeal. His testatrix was substituted as plaintiff and, from a decision of the superior court sustaining the ruling of the commissioner, she appealed to the Supreme Court of Errors of Connecticut.

The legislature intended, said the Supreme Court of Errors, that the duty of giving notice should arise only when a symptom of the disease should plainly appear, not when it was merely suspected. Furthermore, the duty to give notice was not conditioned by the legislature on actual knowledge but on the fact that the symptom of the disease manifested itself. An employee may not disregard that which is clear and plain, and if the circumstances are such that a reasonable man would clearly recognize the existence of a symptom of an occupational disease, it must be regarded as manifest in the sense of the statute. But, the court said, there must be a clear recognition of the symptom as being that of the occupational disease in question. However plain is the presence of the symptom itself, unless its relation to the particular disease also clearly appears, there cannot be said to be a manifestation of a symptom of that disease. The manifestation of a symptom of an occupational disease which sets running the time within which notice is to be given means its manifestation to the employee claiming compensation. The intent may not be imputed to the legislature to make the right of an employee to compensation depend on the adventitious knowledge of others, perhaps strangers to him, or the knowledge of a physician who deems it in the interest of his patient to conceal the actual facts from him, or the knowledge of a physician the interests of whose employer may well tempt him to keep silent as to the actual facts. The case was therefore remanded to the superior court with directions to sustain the appeal and to return the case to the commissioner for further proceedings.—*Bremner v. Marc Eidlitz & Son, Inc. (Conn.), 174 A. 172.*

Society Proceedings

COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 10-14. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Academy of Pediatrics, New York, June 7-8. Dr. Clifford G. Grulee, 636 Church Street, Evanston, Ill., Secretary.

American Association for the Study and Control of Rheumatic Diseases, Atlantic City, N. J., June 10. Dr. Loring T. Swaim, 372 Marlborough Street, Boston, Secretary.

American Association for the Study of Goiter, Salt Lake City, June 24-26. Dr. W. Blair Mosser, 133 Biddle Street, Kane, Pa., Secretary.

American Association for Thoracic Surgery, New York, June 3-5. Dr. Duff S. Allen, 3720 Washington Boulevard, St. Louis, Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., June 6-8. Dr. Henry L. Sanford, 1621 Euclid Avenue, Cleveland, Secretary.

American Association of Medical Milk Commissions, Atlantic City, N. J., June 10-11. Dr. Harris Moak, 360 Park Place, Brooklyn, N. Y., Secretary.

American Bronchoscopic Society, Toronto, Canada, June 1. Dr. Lyman Richards, 319 Longwood Drive, Boston, Secretary.

American Child Health Association, Iowa City, June 19-22. Dr. Philip Van Ingen, 50 West 50th Street, New York, Secretary.

American Federation of Organizations for the Hard of Hearing, Cincinnati, June 2-6. Miss Betty C. Wright, 1601 35th Street N.W., Washington, D. C., Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Russell S. Boles, 1901 Walnut Street, Philadelphia, Secretary.

American Gynecological Society, Hot Springs, Va., May 27-29. Dr. Otto H. Schwarz, 630 South Kingshighway Boulevard, St. Louis, Secretary.

American Heart Association, Atlantic City, N. J., June 11. Dr. H. M. Marvin, 50 West 50th Street, New York, Acting Executive Secretary.

American Laryngological Association, Toronto, Canada, May 29-31. Dr. William V. Mullin, 2020 East 93d Street, Cleveland, Secretary.

American Laryngological, Rhinological and Otological Society, Toronto, Canada, June 3-5. Dr. Robert L. Loughran, Sharon, Conn., Secretary.

American Neurological Association, Montreal, Canada, June 3-5. Dr. Henry Alsop Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. J. Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary.

American Orthopedic Association, Philadelphia, June 5-8. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.

American Otological Society, Toronto, Canada, May 27-29. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.

American Physiotherapy Association, Atlantic City, N. J., June 11-12. Miss Louise Jetter, 17 East Styles Avenue, Collingswood, N. J., Secretary.

American Proctologic Society, Atlantic City, N. J., June 10-11. Dr. Frank G. Runyeon, 1361 Perkiomen Avenue, Reading, Pa., Secretary.

American Radium Society, Atlantic City, N. J., June 10-11. Dr. Edward H. Skinner, 1103 Grand Avenue, Kansas City, Mo., Secretary.

American Society of Clinical Pathologists, Atlantic City, N. J., June 7-9. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, Boston, June 6-8. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Atlantic City, N. J., June 7-8. Dr. Oscar B. Hunter, 1835 Eye Street N.W., Washington, D. C., Secretary.

American Urological Association, San Francisco, June 25-28. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 10-12. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association for Research in Ophthalmology, Atlantic City, N. J., June 11. Dr. Conrad Berens, 35 East 70th Street, New York, Secretary.

Association for the Study of Allergy, Atlantic City, N. J., June 10-11. Dr. Warren T. Vaughan, 808 Professional Building, Richmond, Va., Secretary.

Association for the Study of Internal Secretions, Atlantic City, N. J., June 10-11. Dr. F. M. Pottenger, 1214 Wilshire Boulevard, Los Angeles, Secretary.

Conference of State and Provincial Health Authorities of North America, Atlantic City, N. J., June 14-15. Dr. A. J. Chesley, State Department of Health, St. Paul, Secretary.

Maine Medical Association, York Harbor, June 23-25. Miss Rebekah Gardner, 22 Arsenal Street, Portland, Secretary.

Massachusetts Medical Society, Boston, June 3-5. Dr. Alexander S. Begg, 8 The Fenway, Boston, Acting Secretary.

Medical Library Association, Rochester, N. Y., June 17-19. Miss Frances N. A. Whitman, 25 Shattuck Street, Boston, Secretary.

Medical Women's National Association, Atlantic City, N. J., June 9-11. Dr. Alice I. Conklin, 55 East Washington Street, Chicago, Secretary.

Minnesota State Medical Association, Minneapolis, June 24-26. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Montana, Medical Association of, Helena, July 2-3. Dr. E. G. Balsam, 208½ North Broadway, Billings, Secretary.

National Association of Private Psychiatric Hospitals, Washington, D. C., June 1. Dr. James M. O'Neill, St. Vincent's Retreat, Harrison, N. Y., Secretary.

National Tuberculosis Association, Saranac Lake, N. Y., June 24-27. Dr. Charles J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

North Dakota State Medical Association, Minot, May 27-28. Dr. Albert W. Skelsey, 20½ Broadway, Fargo, Secretary.

Pacific Northwest Medical Association, Spokane, Wash., June 27-29. Dr. C. W. Countryman, 407 Riverside Avenue, Spokane, Wash., Secretary.

Rhode Island Medical Society, Providence, June 6. Dr. J. W. Leesh, 167 Angell Street, Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., June 10-11. Dr. W. C. Spain, 116 East 53d Street, New York, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

4: 269-300 (Feb.) 1935

Indications for and Technic of Thoracoplasty. A. Blalock and H. Johnson, Nashville, Tenn.—p. 269.

Cardiac Disease in General Practice. E. D. Lineberry, Birmingham. —p. 272.

Infections Following Extraction of Teeth. M. Skinner, Selma.—p. 278.

Rattlesnake Venom: Properties, Detoxification and Treatment Following Bite by Rattlesnake. E. B. Carmichael, University.—p. 281.

A Frequently Neglected Procedure in Physical Examinations. R. M. Pool, Fairfield.—p. 285.

American Journal of Anatomy, Philadelphia

56: 161-354 (March 15) 1935. Partial Index

Cytology of Mammary Gland of Albino Rat: I. Pregnancy, Lactation and Involution. Katharine R. Jeffers, Montreal.—p. 257.

Id.: II. Experimentally Induced Conditions. Katharine B. Jeffers, Montreal.—p. 279.

Histogenesis of Human Aorta. J. L. Jackson, Winnipeg, Manit.—p. 305.

American Journal of Cancer, New York

23: 477-728 (March) 1935

Retroperitoneal Xanthogranuloma. C. Oberling, Paris, France.—p. 477.

*Pathologic Conditions Induced by Estrogenic Compounds in Coagulating Gland and Prostate of Mouse. H. Burrows, London, England.—p. 490.

*Extramedullary Plasma Cell Tumors of Upper Air Passages: Report of Case. W. L. Mattick and A. A. Thibaudeau, Buffalo.—p. 513.

Granulosa Cell Tumors of Ovary: Report of Case. H. C. Thornton, Indianapolis.—p. 522.

Effect of Various Goiter Producing Diets on Growth of Carcinoma, Sarcoma and Melanoma in Animals. K. Sugiura and S. R. Benedict, New York.—p. 541.

Thyroid Adenoma in Experimental Animals. C. A. Hellwig, Wichita, Kan.—p. 550.

Primary Carcinoma of Lung in Domestic Fowl. F. L. Apperly, Richmond, Va.—p. 556.

Biologic Effectiveness of Alpha Particles as Function of Ion Concentration Produced in Their Paths. R. E. Zirkle, Philadelphia.—p. 558.

Tumors of Blood Vessels. C. F. Geschickter, Baltimore, and Louisa E. Keasbey, Lancaster, Pa.—p. 568.

Pathologic Conditions in Prostate Induced by Estrogenic Compounds.—Burrows observed that the prolonged administration of estrogenic substance to mice causes hyperplasia and metaplasia in the prostate gland. The prostates of children before birth undergo similar changes, presumably under the influence of estrogenic substance derived from the placenta. Both in mice and in new-born children, the prostatic changes thus induced are completely reversible, restitution to the normal state following a cessation of the supply of estrogenic substance. The changes found in benign enlargement of the human prostate in advanced life resemble in character and situation those observed in mice under the influence of estrogenic substance and in new-born babies. The question is discussed whether the benign enlargement of the prostate in elderly men may be due to the action of estrogenic hormones and may be a reversible condition.

Extramedullary Plasma Cell Tumors of Air Passages.—Mattick and Thibaudeau give a clinical and pathologic description of a case of plasma cell tumors occurring simultaneously in the nasopharynx and hypopharynx, apparently of neoplastic nature. Details of nineteen such tumors that have been previously reported and variously interpreted as granulomatous, inflammatory, benign or malignant by different observers are presented. The authors suggest that the occurrence of polypoid growths in the upper air passages, of single or multiple nature, with a history of long duration, should suggest plasma cell tumor. They also suggest the use of x-rays as an aid to diagnosis. They believe that the tumors in their case are unusual and dissimilar to most of the tumors reported previously, in that they are definitely neoplastic.

American Journal of Clinical Pathology, Baltimore

5: 89-172 (March) 1935

*Pathology of Oil Aspiration Pneumonia (Lipoid Pneumonia). K. Ikeda, Minneapolis.—p. 89.

The Thyroid Gland in Kansas. C. A. Hellwig, Wichita, Kan.—p. 103.

Epidermoid Carcinoma of Lung and Pleura versus Endothelioma of Pleura: Case Report. T. M. Peery and K. M. Lynch, Charleston, S. C.—p. 112.

Adrenal Disease in Relationship to Hypoglycemia and Death. J. C. Norris, Atlanta, Ga.—p. 120.

Postmortem Analysis as to Etiology in One Thousand Cases of Peritonitis. C. C. Pflaum, Columbia, Mo.—p. 131.

Paroxysmal "March" Hemoglobinuria: Report of Case. E. M. Watson and L. C. Fischer, London, Ont.—p. 151.

*Very Rapid Flocculation Method for Diagnosis of Syphilis: Preliminary Report. F. Rytz, Minneapolis.—p. 159.

Studies in Cerebrospinal Fluid: II. B. Gruskin, Philadelphia.—p. 162.

Technic for Preservation and Microscopic Demonstration of Nodules in Gout. Elena de Galantha, Rochester, Minn.—p. 165.

Pathology of Oil Aspiration Pneumonia.—Ikeda terms oil aspiration pneumonia a definite entity with a fairly characteristic clinical syndrome and constant pathologic changes. Grossly, the lung presents an appearance of bronchopneumonia. The lung is lumpy and rubbery on palpation. Yellowish mottling of the pleural surfaces may be conspicuous. The cut surface is usually dry and may show irregular areas of yellowish peribronchial consolidation, usually outlined sharply against the surrounding parenchyma but sometimes merging gradually into it. Bronchopneumonic patches are usually more grayish, while small abscesses are whiter than the typical lesion of oil pneumonia. Oily fluid may exude from the cut surface. Pus is expressed only in the presence of bronchopneumonia or purulent bronchitis. Nodular lesions may be encountered in chronic cases. Microscopically, the fundamental pathologic process consists of (1) massive infiltration of macrophages, (2) proliferation of stromal cells and (3) appearance of foreign body giant cells. The macrophages and giant cells usually contain droplets of oil. Globules of free oil are found deposited within distorted alveolar spaces and in the intervening pneumonic areas. In chronic cases, well localized granulomatous lesions may develop round the entrapped masses of oil. The degree of fibrosis is proportionate to the duration of the lesion.

Rapid Flocculation Method for Diagnosis of Syphilis.—The flocculation method for the diagnosis of syphilis reported by Rytz is performed as follows: The test requires only one tube for each serum. In a tube 75 mm. by 10 mm., 0.15 cc. of serum is placed and heated in a water bath at 60 C. for three minutes; 0.05 cc. of half saturated ammonium sulphate is added and mixed by shaking. The antigen emulsion, 0.05 cc., is added, mixed by shaking, and 1 cc. of a 0.9 per cent solution of sodium chloride is added and rotated in such a manner that the antigen particles become evenly distributed. This is shaken in the Kahn shaker for three minutes, or by hand in such a manner that the rack, in even back and forth movements, makes about 275 movements per minute, and then 2 cc. of a 0.9 per cent solution of sodium chloride is added and the tube is inverted slowly two or three times just before the reading is taken. In order not to miss a 1 plus reaction, the results are preferably read over the Fisher lamp, aided by a hand lens. The slanted part of the contents of the tube should be relied on for estimating the results. A 1 plus reaction consists of tiny, densely scattered flocculation particles in a slightly opalescent fluid. Plus 2, 3 and 4 reactions show clumps of flocculation in a clear fluid, the clumps varying in size according to the positiveness of the serum. A negative test shows only minute antigen particles in a slightly hazy fluid without clumping. Reliable results may be obtained with spinal fluid in about eight minutes by adding 0.1 cc. of half saturated ammonium sulphate to 0.5 cc. of unheated fluid, mixing this, then adding 0.05 cc. of antigen emulsion, and mixing again. This should be shaken for five minutes; 2.5 cc. of 0.9 per cent solution of sodium chloride is

added, inverted once or twice and read. The antigen employed is prepared as described by Noguchi and the antigen emulsion is prepared essentially as described by Kline except for the modifications given.

American Journal of Diseases of Children, Chicago

49: 557-834 (March) 1935

Enuresis: Genetic Study. Louise G. Frary, Minneapolis.—p. 557.
Lipoid Nephrosis: Clinical and Pathologic Study Based on Fifteen Years' Observation, with Especial Reference to Prognosis. H. Schwarz and J. L. Kohn, New York.—p. 579.
Metabolism in Children During Muscular Work: I. Effect of Racing on Urinary Constituents in Boys. I. Nakagawa and K. Kawamo, Tokyo, Japan.—p. 594.
*Dick Test and Blood Agar Cultures as Aids in Diagnosis of Scarlet Fever. B. M. Gasul and P. S. Rhoads, Chicago.—p. 603.
Calcium, Phosphorus and Nitrogen Retention of Children: Effects of Acid-Forming and Base-Forming Diets. Norma J. Davis, Berkeley, Calif.—p. 611.
Old Tuberculin, Human Tubercle Bacillus Protein and Trichloracetic Acid Precipitate. C. A. Stewart, Minneapolis.—p. 625.
Hemoglobin Index and Jaundice of the New-Born. C. Hollósi and Z. Horváth, Szeged, Hungary.—p. 638.
*Prophylaxis of Simple Anemia in Infancy with Iron and Copper: Effect on Hemoglobin, Weight and Resistance to Infection. S. J. Usher, P. N. MacDermot and E. Lozinski, Montreal.—p. 642.
Influence of Acute Infection and Artificial Fever on Plasma Lipids. A. V. Stoesser and I. McQuarrie, Minneapolis.—p. 658.
Basal Metabolism in Children of Normal and of Subnormal Intelligence with Blood Cholesterol and Creatinine Values. H. B. Rothbart, Ann Arbor, Mich., with assistance of A. B. Haw, Lansing, Mich.—p. 672.
Birth Pains and Blood of the New-Born. Z. Horváth and C. Hollósi, Szeged, Hungary.—p. 689.
Studies in Immunity: V. Effect of Acute Diseases on Reaction of Skin to Tuberculin. A. G. Mitchell, W. E. Nelson and T. J. LeBlanc, with assistance of Estelle W. Brown, Cincinnati.—p. 695.

Dick Test and Blood Agar Cultures in Diagnosis of Scarlet Fever.—Gasul and Rhoads state that a persistently positive reaction to the Dick test during the whole course of the disease throws great doubt on the correctness of the diagnosis, while a positive reaction at the beginning of the disease together with a negative reaction during the course of the disease is confirmatory evidence that the disease is scarlet fever. According to their experience, cultures negative for hemolytic streptococci, properly taken at the beginning of the disease on a properly prepared medium and properly interpreted, offer strong evidence against the correctness of a diagnosis of scarlet fever. A positive culture, however, in the presence of the other clinical observations of scarlet fever confirms the diagnosis.

Prophylaxis of Anemia in Infancy with Iron and Copper.—Usher and his associates compared the results of anemic infants receiving either iron or iron and copper with those of a control group receiving no medication. 1. In a series of normal children confined to an institution, the hemoglobin value was found to fall sharply from the high level at birth to approximately 12.2 Gm. at the age of from 2 to 3 months; it rose slightly at the age of 5 months and then fell slowly to an average level of 11.2 Gm. at the age of 1 year. 2. A group of children receiving daily from 1½ to 3 grains (0.1 to 0.2 Gm.) of iron in the form of ferric glycerophosphate showed at the age of 1 year an average hemoglobin value 15 per cent higher than that of the controls. 3. A group of children receiving daily from 1½ to 3 grains of iron supplemented with from 1/60 to 1/32 grain (0.001 to 0.002 Gm.) of copper sulphate showed an average hemoglobin value 19 per cent higher than that of the control group. 4. At the ages of from 8 to 10 and from 12 to 14 months, the average weight of the group receiving iron was slightly less than that of the control group, and that of the group receiving copper was from 8 to 12 ounces more. 5. The children treated with iron showed only a slight advantage over the untreated controls as to the incidence and severity of infections, while those treated with iron and copper showed a more definite advantage. 6. The children treated with iron showed a moderate advantage over the untreated controls in the mortality rate, and those treated with iron and copper a striking advantage. This advantage for the group receiving copper was especially evident in the mortality rate from pertussis. 7. In the infants who died, no relationship could be demonstrated between the ages and the amount of iron and copper per kilogram of liver or between the age and the total amount of iron present in the liver.

American Journal of Medical Sciences, Philadelphia

189: 305-456 (March) 1935

*Clinical Value of Alternate Suction and Pressure in Treatment of Advanced Peripheral Vascular Disease. E. M. Landis and L. H. Hitzrot, Philadelphia.—p. 305.
Tentative Working Classification to Facilitate Treatment of Pulmonary Tuberculosis. L. Brown, Saranac Lake, N. Y., and H. L. Sampson, Trudeau, N. Y.—p. 325.
Susceptibility to Tuberculosis: Race or Energy Level? C. A. Mills, Cincinnati.—p. 330.
Obtaining Permissions for Autopsies. Margaret Warwick, Buffalo.—p. 341.
Effect of Standardized Exercise on Four Lead Electrocardiogram: Its Value in Study of Coronary Disease. L. N. Katz and H. Landt, Chicago.—p. 346.
The Effect of Scarlet Fever on the Heart. J. M. Faulkner, E. H. Place and W. R. Ohler, Boston.—p. 352.
The Migraine Physique. E. J. Stieglitz, Chicago.—p. 359.
Ringworm of the Scalp: Curability, Without Depilating Measures, of Infections Caused by "Animal" Microsporons. G. M. Lewis, New York.—p. 364.
*Alleged Increase of Sensitivity of Vascular Response to Epinephrine Following Injection of Plasma from Nephritic Patients. I. H. Page, New York.—p. 371.
Parenteral Liver Therapy in Streptococcus Pneumonia: Note. J. A. Wilson, Meriden, Conn.—p. 374.
*Etiology of "Alcoholic" Polyneuritis. M. B. Strauss, Boston.—p. 378.
Sedimentation Time as an Aid in Differentiating Acute Appendicitis and Acute Salpingitis. C. T. Smith, Thelma Harper and Anna Watson, Rocky Mount, N. C.—p. 383.
Acute Eosinophilic Leukemia. D. J. Stephens, Rochester, N. Y.—p. 387.
Quantitative Study of Renal Injury in Case of Acute Poisoning by Bichloride of Mercury: Note Regarding Treatment. R. H. Freyberg and F. H. Lashmet, Ann Arbor, Mich.—p. 392.
Acute Potassium Bichromate Poisoning. M. Goldman, Hollis, Long Island, N. Y., and R. H. Karotkin, Hartford, Conn.—p. 400.
Clinical Application of Duodenal Extract (Macallum-Laughton) in Diabetes Mellitus. G. G. Duncan, N. P. Shumway, T. L. Williams and F. Fetter, Philadelphia.—p. 403.
Use of Suprarenal Extract and Sodium Salts in Case of Addison's Disease: Note. M. A. Blankenhorn and J. M. Hayman Jr., Cleveland.—p. 419.
Histologic Changes in Adrenals of Tumor-Bearing Rats. C. S. McEuen and H. Selye, Montreal.—p. 423.
Bence-Jones Proteinemia in Multiple Myeloma. A. Cantarow, Philadelphia.—p. 425.

Alternate Suction and Pressure in Peripheral Vascular Disease.—Landis and Hitzrot exposed the extremities of twenty-nine patients suffering from advanced peripheral vascular disease to alternate suction (from −80 to −120 mm. of mercury) and pressure (from +40 to +80 mm. of mercury) for twenty-five and five seconds, respectively. These pressure variations were used for periods of from one to two hours, at first once or twice daily, then three times a week and finally, as symptoms diminished, once a week. Cyanosis usually diminished; symptomatic improvement was sometimes observed, however, without a significant change in the color of the skin. The rest pain of ischemia was usually abolished during actual use of suction and pressure and gradually became less severe in the intervals between exposure to pressure variations. Lasting relief of pain was not observed in the presence of deeply extending gangrene or large sloughs. Ulcers, enlarging or indolent under ordinary conservative treatment, usually began to heal soon after suction and pressure therapy was instituted. Intermittent claudication became, in general, milder and exercise tolerance was slightly, but definitely, increased. Suction and pressure therapy was of no definite, lasting service in patients with osteomyelitis, deeply extending gangrene or large sloughs. This form of therapy must be applied with caution, small pressure changes being used at first. The presence of acute spreading infection or encapsulated pus must be definitely ruled out before pressure variations are used. Suction and pressure therapy, if carefully applied, appear to be worthy of clinical trial in the treatment of peripheral vascular disease even when organic obstruction has advanced to the point at which arterial blood flow can no longer be increased by vasodilation. The method may be of service by increasing local blood flow temporarily during episodes of pain or ulceration so that time is gained for the development of adequate collateral blood flow.

Hypertension in Nephritis.—Page refutes Hülse's theory that the hypertension in nephritis is due to the occurrence of peptone-like substances in the blood, which are able to sensitize the blood vessels of animals to epinephrine. He observed that native plasma, alcoholic extracts and ultrafiltrates do not alter

the responsiveness of the vascular system to epinephrine either in pithed cats or in etherized normal cats. He finds no basis for Hülse's claim that substances which enhance the vascular action of epinephrine are present in the blood of hypertensive nephritic patients. It is possible that he mistook the increased susceptibility to epinephrine which normally accompanies its repeated administration for an effect due to plasma. Hülse and Strauss's chemical evidence as to the existence of peptone in the blood of hypertensive nephritic patients has not received confirmation by other investigators.

Etiology of Alcoholic Polyneuritis.—Strauss selected for study ten patients suffering from "alcoholic" polyneuritis and allowed them to continue their customary daily intake of spirituous liquor on condition that they consume a well balanced, high vitamin diet supplemented with yeast or its products. They were further given vitamin B concentrates and liver extract by parenteral injection in order to obviate any possible disturbance in absorption present or resulting from their use of alcohol. Improvement in the polyneuritis occurred in every instance. It is apparent that ingestion of alcohol had no demonstrable neurotoxic effect on peripheral nerves when given in amounts up to a quart a day, in patients who were partaking of an adequate diet and receiving injections of liver extract and vitamin B concentrates. Nevertheless, it remains theoretically possible that even smaller quantities of alcohol so administered as to raise the blood alcohol to a high concentration might cause damage to the peripheral nerves. Investigations indicate that alcohol is poisonous to nerve cells unless there is a sufficient amount of vitamin B or some other dietary factor present to act as an antidote. The author's observations do not in any way eliminate the possibility that some impurity which might have been present in the alcohol consumed by his patients before the onset of polyneuritis was responsible for the nerve lesions. However, the data presented clearly indicate that the administration of pure blended whisky in quantities varying from one pint to one quart daily in no way prevents the relief of "alcoholic" polyneuritis when the patients are adequately nourished. The clinical and pathologic aspects of the polyneuritis associated with alcoholism are essentially the same as those of the polyneuritis of beriberi. The high incidence of gastric secretory defects in these patients suggests that poor assimilation of nutriment from the gastro-intestinal tract plays a part in conditioning the deficiency state.

American Journal of Tropical Medicine, Baltimore

15: 91-246 (March) 1935

The Coccidia of Man. T. B. Magath, Rochester, Minn.—p. 91.
Fourth Year's Observations on Malaria in Panama, with Reference to Control with Atabrine and Plasmochin. W. H. W. Komp and H. C. Clark, Panama, Republic of Panama.—p. 131.
*Clinical Study of Intestinal Fungi. A. C. Reed and H. G. Johnstone, San Francisco.—p. 155.
*Plasmodium Ovale Considered as a Modification of Plasmodium Vivax After a long Residence in the Human host. A. Giovannola, Rome, Italy.—p. 175.
Specific Status of Plasmodium Ovale Stephens. S. P. James, W. D. Nicol and P. G. Shute.—p. 187.
Amebic Dysentery: Exudate as Guide to Treatment. G. R. Callender, Fort Sam Houston, Texas.—p. 189.
Food Handlers and Epidemiology of Amebiasis. H. G. Johnstone and Margaret K. Iverson, San Francisco.—p. 197.
Duration of Motility of Spirochetes of Yaws in Small West Indian Fly Hippelates Pallipes Loew. H. W. Kumm, T. B. Turner, Kingston, Jamaica, B. W. I., and A. A. Peat.—p. 209.
Present Status of Malaria in Oklahoma. W. P. N. Canavan, Oklahoma City.—p. 225.

Clinical Study of Intestinal Fungi.—A study of cultures of fungi from fifty cases with various often multiple diagnoses leads Reed and Johnstone to feel that in no case did the fungus have a pathognomonic relationship to the diagnoses involved. It is possible, but difficult of proof, that the fungus in any case modified or influenced the symptomatology. The response to therapy was characteristic and average for the diagnoses concerned. Further survey studies would be of value in elucidating the problem of pathogenicity of intestinal fungi. Such studies should use a uniform method of culture and classification. They should be made so far as possible on patients with a single type of disease, of localized residential history, with repeated cultures, associated cultures of the mouth and of gastric and duodenal contents, and close correlative study of the chemical and bacterial features of the specimens of which cultures are taken.

Plasmodium Ovale Considered Modification of Plasmodium Vivax.—Both in cases of chronic infections with Plasmodium vivax and in interhuman passage of the same strain with infected blood, Giovannola observed the following modifications: ameboid movement reduced; schizonts globular, compact and of small size; premature tendency to nuclear division; small number of merozoites, and scarcity of gametocytes. Plasmodium vivax as he observed it in chronic infections and in interhuman passages is practically indistinguishable from the usual description of Plasmodium ovale. He does not believe that the modifications of Plasmodium vivax studied in cases of dementia paralytica are due to the debilitated condition of the patients, because he did not find those modifications in the strains passed through paralytic patients by means of mosquitoes even for a long time. He considers these modifications due to the long residence in the vertebrate host to whom the parasite has adapted itself by modifying its habits. The transmission of Plasmodium ovale by mosquitoes and the permanence of its morphology is an interesting experiment, but this passage was effected only for one mosquito cycle. In interhuman direct passages more than one passage is necessary to observe marked modifications of the morphology of the parasite, and further investigations on the morphology of Plasmodium ovale after more than one passage will be of great interest. Oval erythrocytes cannot be accepted as a characteristic, because these often occur in the strains passed directly from man to man. The characteristic cross disposition of pigment in the oocyst is not constant. These observations favor the view that Plasmodium ovale is a modification of Plasmodium vivax in chronic infections.

Anatomical Record, Philadelphia

61: 379-498 (March 25) 1935

Cyclic Uterine Bleeding in a New World Monkey (Ateles Geoffroyi). L. Goodman and G. B. Wislocki, Boston.—p. 379.
Prepuberal Development of Pig Ovary and Its Relation to Stimulation with Gonadotropic Hormones. L. E. Casida, Madison, Wis.—p. 389.
Use of Polarized Light in Study of Myelin Degeneration: I. Appearance and Progress of Degeneration After Transection of Sciatic Nerve of White Rat. H. E. Setterfield and T. S. Sutton, Columbus, Ohio.—p. 397.
Sternalis Muscle in American Whites and Negroes. R. N. Barlow, St. Louis.—p. 413.
Physiology of the Corpus Luteum: IX. Inhibition of Estrin by Progestin-Containing Extracts of Corpus Luteum. W. M. Allen and R. K. Meyer, Rochester, N. Y.—p. 427.
Development of Spinal Ganglions Following Transplantation of Spinal Cord With or Without Somites. S. R. Detwiler, New York.—p. 441.
Studies on Physiology of Reproduction in the Sheep: III. Time of Ovulation and Rate of Sperm Travel. W. W. Green and L. M. Winters, Minneapolis.—p. 457.
Some Uterine Effects Obtained in Female Monkeys During Continued Estrin Administration, with Especial Reference to Cervix Uteri. E. T. Engle and P. E. Smith, New York.—p. 471.
Influence of Hereditary Dwarfism on Differentiation of Skeleton of Mouse. A. B. Dawson, Boston.—p. 485.

Annals of Internal Medicine, Lancaster, Pa.

8: 991-1246 (March) 1935

Relation of Gastric Secretion to Hematopoiesis. T. G. Klumpp and S. Koletsky, New Haven, Conn.—p. 991.
Treatment of Lobar Pneumonia by Artificial Pneumothorax. F. G. Holmes and H. Randolph, Phoenix, Ariz.—p. 1008.
Beer in the Diabetic Diet. S. Strouse, S. Soskin and B. Vidgoff, Chicago.—p. 1028.
*Diagnosis of Cardiac Aneurysm: Report of Two Cases. L. H. Sigler and J. J. Schneider, Brooklyn.—p. 1033.
Vascular Crises. D. Riesman, Philadelphia.—p. 1047.
Multiple Myeloma. N. Enzer and B. Lieberman, Milwaukee.—p. 1062.
*Hyperproteinemia, Autohemagglutination, Renal Insufficiency and Abnormal Bleeding in Multiple Myeloma. A. G. Foord, Pasadena, Calif.—p. 1071.
Tuberculosis of Childhood. C. H. Smith, New York.—p. 1090.
Hemochromatosis: Review of Literature and Report of Three Cases. J. R. Darnall, Ancon, Canal Zone.—p. 1121.

Diagnosis of Cardiac Aneurysm.—Sigler and Schneider present two cases of left ventricular aneurysm. These cases, together with some reported in the literature, lead them to the following conclusions: 1. Most cardiac aneurysms are left ventricular, predominantly in the apical region, and usually follow acute coronary occlusion. 2. The subjective symptoms of cardiac aneurysm are not specific, being merely those of

cardiac failure or of the anginal syndrome which may accompany similar cases without aneurysm. 3. The clinical criteria for the diagnosis of ventricular aneurysm are a history of coronary occlusion and an abnormal area of cardiac dulness over which is heard a very weak first sound, associated with a gallop rhythm usually situated near the left sternal border. 4. The roentgenographic criteria include a bulging shadow following the displacements of the heart with changes in respiration and position, and slackening of the movements of the heart or asynchronous pulsation with systolic expansion in that area. If filled with organized clot, an increased area of density will be seen, and calcification, if present, is suggestive. 5. The electrocardiogram is of no specific diagnostic value. Apical aneurysms, however, seem to be associated with major QRS deflections which are directed downward in the second and third leads and, in the first lead, with a low voltage, upward. This may perhaps be significant as corroborative evidence. 6. Although only about 0.5 per cent of ventricular aneurysms have heretofore been diagnosed during life, the authors believe that, if the condition is borne in mind and attention paid to the criteria, the diagnosis will be made with increasing frequency.

Multiple Myeloma.—Foord observed that profound autohemagglutination of the red cells occurred in dry and wet films in four cases of multiple myeloma and encountered difficulty in counting erythrocytes because of granule formation in the red counting pipet in two cases. Marked hyperproteinemia was present in three cases and was apparently present in the fourth and seemed to be the cause of these abnormal phenomena. Renal insufficiency apparently resulted from plugging of the glomerular capillaries by inspissated protein and possibly by the clumping of erythrocytes or changes in osmotic pressure due to the increased protein. Intravascular clumping was demonstrated during life by the ophthalmoscopic examination of the retinal veins in one case when pressure sufficient to slow down the circulation was applied externally on the eyeball. Prolonged uncontrollable bleeding and clotting time and increased calcium content of the serum with little change in the platelet count occurred in two cases. The observation of marked rouleau formation in the smears of two of the cases led to procedures finally making the diagnosis of multiple myeloma. Multiple myeloma with resultant renal abnormalities should be suspected in cases of atypical nephritis.

Annals of Surgery, Philadelphia

101: 819-978 (March) 1935

Palatine Access to Ganglion Sphenopalatinum and to Second Branch of Trifacial Nerve. S. S. Averbukh, I. S. Brevda, D. N. Lubotsky and O. S. Semenova, Leningrad, U. S. S. R.—p. 819.
Mediastinal Ganglioneuroma. L. Sophian, New York.—p. 827.
Neurofibroma of Hypoglossal Nerve. L. Friedman and A. A. Eisenberg, New York.—p. 834.
Bleeding Malignant Polypoid Lesions in Cardia of the Stomach Associated with Severe Anemia: Report of Three Cases. J. T. Priestley and F. J. Heck, Rochester, Minn.—p. 839.
Peptic Ulcers Involving Greater Curvature of Stomach. W. B. Matthews, Chicago.—p. 844.
Massive Hemorrhage in Peptic Ulcer: Report of Eighty-Seven Cases. J. W. Hinton, New York.—p. 856.
Carcinomas of Large Bowel: Part I. The Colon. T. S. Raiford, New York.—p. 863.
*Intraperitoneal Vaccination in Surgery of Colon. E. B. Potter and F. A. Coller, Ann Arbor, Mich.—p. 886.
Omentopexy in Portal Cirrhosis of Liver with Ascites: Review of Twenty-Three Cases. R. S. Grinnell, New York.—p. 891.
Acute Cholecystitis. B. Lipshutz, Philadelphia.—p. 902.
*Choledochus Cyst with Double Common Bile Duct. W. B. Swartley and S. D. Weeder, Philadelphia.—p. 912.
Changes in Biliary System After Cholecystectomy: Causes of Recurrence of Gallbladder Symptoms. S. Eiss and J. H. Whaley Jr., New York.—p. 921.
Skin Grafting. J. V. Goode, Dallas, Texas.—p. 927.

Intraperitoneal Vaccination in Surgery of Colon.—Potter and Coller gave intraperitoneal injections of the bacterial antigen prepared from heat-killed colon bacilli consisting of 200,000,000 heat-killed Bacillus coli per cubic centimeter suspended in 1 per cent of gum tragacanth in physiologic solution of sodium chloride prepared in ampules of 30 cc. obtained from Steinberg to seventy-nine patients, most of whom required major operations on the colon. A favorable clinical response and striking peritoneal reaction (seen at operation) was observed in practically all cases. This ranged from mild hyperemia of the peritoneum to the production of an abundant exudate, in some instances giving the appearance of a true fibrinopurulent peritonitis. Peritoneal vaccination is of questionable value in protecting the peritoneum against gross fecal contamination. Its usefulness has been demonstrated as an aid to the peritoneum in its defense against minor degrees of soiling and infection. The low incidence of peritonitis (one case in the group) appears to justify the procedure as a valuable adjunct in the preparation of patients for operations on the colon. Preparation of the peritoneum by vaccination probably has its greatest usefulness in preventing peritonitis due to slight contamination, such as occurs through a microscopic perforation of the intestine at a tumor site or through the trauma to a dilated and weakened portion of intestine incidental to its surgical removal. It is in these instances that a previous peritoneal reaction with hyperleukocytosis is of real value to the peritoneum in its defense against infection.

Choledochus Cyst with Double Common Bile Duct.—Swartley and Weeder present a case of choledochus cyst with double common bile duct and are of the opinion that it may occur more often and that a thorough search has not been made in those cases of choledochus cyst for a second common duct. An obstruction to the duct would seem to play an important part in the etiology of choledochus cyst, and a second duct if it is present will in all probability be sufficiently large and of sufficient diameter to drain adequately the bile into the duodenum. In their case, during the two months that bile drained from the wound intermittently, the authors were tempted to question the adequate patency or even the presence of a second duct, which they had believed existed at the time of operation. The profuse drainage of bile depleted the child so that at one time they contemplated collecting the bile and introducing it through a nasal catheter into the stomach. A rhinopharyngitis prevented this. A subsequent middle ear disease and mastoiditis probably resulted from the lowered resistance due to the loss of bile. The drainage of bile through the abdominal wound ceased after two months and has not recurred. It is therefore obvious that there is a patulous common duct remaining. The hypertrophy of the left lobe of the liver verifies the fact that there was a separate duct for the right and left sides of the liver and, as the duct draining the right side was ligated, the right lobe of the liver has atrophied and the left lobe draining through the remaining duct has undergone a compensatory hypertrophy.

Archives of Neurology and Psychiatry, Chicago

33: 453-686 (March) 1935

Critique of Proposed "Ideal" Sterilization Legislation. A. Myerson, Boston.—p. 453.
Autonomic Responses to Electrical Stimulation of Hypothalamus, Preoptic Region and Septum. S. W. Ranson, H. Kabat and H. W. Magoun, Chicago.—p. 467.
Sweating Reaction in Patients with Diseases of Spinal Cord: Study of Reaction Produced by Injection of Pilocarpine Hydrochloride. C. B. Craig and C. C. Hare, New York.—p. 478.
*Experimental Studies in Alcoholism: I. Alcohol Content of Blood and Cerebrospinal Fluid Following Oral Administration in Chronic Alcoholism and Psychoses. R. Fleming and E. Stotz, Boston.—p. 492.
Psychology of a Certain Type of Malingering. K. A. Menninger, Topeka, Kan.—p. 507.
*Cerebrospinal Fluid in Tuberculous Meningitis. H. H. Merritt and F. Fremont-Smith, Boston.—p. 516.
Vasomotor Disturbances Resulting from Cortical Lesions. Margaret A. Kennard, New Haven, Conn.—p. 537.
Frontal Lobe of Primates: Relation of Cyto-Architecture to Functional Activity. P. C. Bucy, Chicago.—p. 546.
Functions of Frontal Association Area in Primates. C. F. Jacobsen, New Haven, Conn.—p. 558.
*Hypothermia in Cases of Hypothalamic Lesions. C. Davison and N. E. Selby, New York.—p. 570.
Carbohydrate Metabolism: Effect of Hypothalamic Lesions and Stimulation of Autonomic Nervous System. L. Davis, D. Cleveland and W. R. Ingram, Chicago.—p. 592.

Experimental Studies in Alcoholism.—Fleming and Stotz studied the distribution of orally ingested alcohol in the blood and cerebrospinal fluid of fifty-two subjects in order to determine whether differences occur that can be correlated with differences in the clinical picture or in drinking habits. The volume of alcohol ingested was 0.6 cc. of absolute alcohol in a 20 per cent solution per kilogram of body weight. The chemi-

cal method for the determination of the alcohol was based on Nicloux's principle. The method was modified for use with the Folin blood filtrate. The experimental subjects consisted of eight patients suffering from schizophrenia, eight having delirium tremens, nine manifesting alcoholic hallucinosis, nine having syphilis of the central nervous system, two cerebral arteriosclerotic patients and a manic-depressive psychotic (depressed) patient; fifteen of the cases were without psychosis. According to drinking habits the subjects were divided into three groups: twenty-five heavy drinkers, fifteen moderate drinkers and twelve abstainers. Comparison of composite graphs showed that in heavy drinkers the alcohol of the blood rises more rapidly, reaches a higher maximum and falls more quickly than in abstainers; the values for moderate drinkers occupy an intermediate position. In the cerebrospinal fluid the alcohol rises more rapidly to a higher peak and falls more quickly in the heavy drinkers than in the moderate drinkers, while the curves for the abstainers occupy an intermediate position. No correlation could be demonstrated between the clinical picture and type of curve. The composite curves for the alcoholic psychoses resembled those for the heavy drinkers, and those for the schizophrenic group approached the form in the group of abstainers. The general drinking habits of each group seem to determine the shape of the composite curves.

Cerebrospinal Fluid in Tuberculous Meningitis.—Merritt and Fremont-Smith point out that the cerebrospinal fluid in tuberculous meningitis has a characteristic syndrome that rarely occurs in any other disease. The determination of the cerebrospinal fluid pressure, cytology, protein, sugar, colloidal gold reaction and Wassermann reaction is necessary to establish the syndrome. Their observations were made on 297 fluids from eighty-four cases of tuberculous meningitis verified by necropsy, inoculation of guinea-pigs or the finding of tubercle bacilli in the clot or centrifugated sediment of the cerebrospinal fluid. In many cases, lumbar puncture was performed on several occasions. They found that the cerebrospinal fluid in tuberculous meningitis has the following characteristics: 1. The pressure is elevated (more than 200 mm. of cerebrospinal fluid). 2. The appearance is clear or like ground glass, colorless or faintly xanthochromic, and the fluid usually shows a delicate weblike clot. 3. There is an increase in white cells (from 25 to 500 per cubic millimeter); lymphocytes predominate. 4. There is an increase in the protein content (from 45 to 500 mg. per hundred cubic centimeters). 5. The sugar level is decreased (less than 45 mg. per hundred cubic centimeters). 6. The chloride content is decreased (less than 650 mg. per hundred cubic centimeters). 7. The colloidal gold test shows a mild midzone reaction or no reaction. If a puncture is done early in the disease, the typical cerebrospinal fluid formula occasionally may be absent. Subsequent punctures will, however, nearly always show the typical changes. The complete formula for the cerebrospinal fluid in tuberculous meningitis is nearly pathognomonic of the disease. The authors' data show no appreciable difference in the fluids from infants, children and adults. Their data confirm the syndrome first described by Denigés and Sabrazés and provide many exceptions to former statements. No hard and fast rules can be made for any single constituent in the cerebrospinal fluid. By grouping the data obtained from the several tests outlined, it is possible, however, to establish cerebrospinal fluid syndromes of diagnostic value for various diseases.

Hypothermia in Hypothalamic Lesions.—Davison and Selby describe a case in which clinically the patient presented slight polyuria and polydipsia, adiposogenital dystrophy, hypersomnia and a prolonged subnormal temperature. For at least three months the temperature ranged from less than 90 to 96.6 F., the average temperature being about 92.5 F. Pathologically, an angioma, situated in the floor of the third ventricle, destroyed partially the oral ends of the supra-optic and paraventricular nuclei and the right mamillary body. The nuclei tuberis proper were destroyed throughout their entire extent. In addition, the following hypothalamic nuclei were implicated in the destructive process: the mamillo-infundibular and pallido-infundibular nuclei, the substantia grisea centralis and the intercalate and interfornicate nuclei. An attempt was made to attribute the syndrome presented to the involvement of the hypothalamic nuclei. The slight polyuria and polydipsia were most likely produced by the partial destruction of the paraventricular and supra-optic nuclei. The extreme subnormal temperature is ascribed to the extensive implication of the nuclei tuberis proper and of the mamillary bodies.

Archives of Otolaryngology, Chicago

21: 249-384 (March) 1935

Effect of Radium Emanations on Laryngeal Cartilage. M. F. Arbuckle, E. V. Cowdry and R. Votaw, St. Louis.—p. 249.
Allergy and Its Relationship to Sinusitis and Allied Nasal Conditions. A. I. Cohen, Boston.—p. 265.
Chronic Suppurative Sinusitis: Point of View as to Treatment. H. I. Lillie, Rochester, Minn.—p. 272.
Pathways of Reflex Pain in Vidian Neuralgia. H. H. Vail, Cincinnati.—p. 277.
Principles Underlying Ciliary Activity in Respiratory Tract: III. Independence of Tracheal Cilia in Vivo of Drug and Neurogenous Stimuli. A. M. Lucas and L. C. Douglas, St. Louis.—p. 285.
Pathology of Otosclerosis: Report of Cases. E. W. Hagens, Chicago.—p. 297.
Fissula Ante Fenestram: Its Form and Contents in Early Life. B. J. Anson and J. Martin Jr., Chicago.—p. 303.
*Local Tumor-like Deposits of Amyloid in Larynx: Report of Case with Review of Literature. R. Kramer and M. L. Som, New York.—p. 324.

Tumor-like Deposits of Amyloid in Larynx.—Kramer and Som observed that idiopathic or primary local amyloid tumors occur without corresponding amyloid deposits elsewhere in the body. They are to be distinguished from (1) amyloid deposits occurring secondarily in preexisting neoplasms or areas of chronic inflammation, (2) local tumor-like accumulations of amyloid occurring in the course of generalized amyloidosis and (3) tumor-like amyloid masses in generalized amyloidosis with atypical localization. The idiopathic amyloid deposits occur most frequently in the upper air passages, the larynx being the most favored site. These tumors are usually multiple and present a nodular, waxy appearance. Biopsy and intravital staining with congo red usually establish the diagnosis. Microscopically, the picture is that of a homogeneous, structureless mass of tissue that is readily identified as amyloid with the aniline stains. These tumor-like accumulations of amyloid may be without symptoms; when symptoms are present, they depend chiefly on mechanical pressure. As recurrences are frequent, total extirpation is essential. When radical removal is not feasible, radiotherapy has been found to be of great value.

Archives of Pathology, Chicago

19: 287-464 (March) 1935

*Lesions Induced in Lungs by Intravenous Injection of Tar. J. P. Simonds and J. S. Curtis, Chicago.—p. 287.
Etiology of Benign Tumors. Helen Ingleby, Philadelphia.—p. 303.
*Juvenile Dementia Paralytica: XII. Gross and Microscopic Pathology. W. C. Menninger, Topeka, Kan.—p. 316.
Inguinal Lymphogranuloma in Its Relation to Stricture of the Rectum. M. S. Wien, Minnie Oboler Perlstein and B. H. Neiman, Chicago.—p. 331.
Experiments on Compensatory Renal Hypertrophy. R. B. Allen, New York, and F. C. Mann, Rochester, Minn.—p. 341.
Experimental Goiter: Functional, Chemical and Histologic Studies. C. A. Hellwig, Wichita, Kan.—p. 364.

Lung Lesions Induced by Intravenous Injection of Tar.—Repeated intravenous injections of a mixture of tar and liquid petrolatum given to rabbits by Simonds and Curtis resulted in the following pathologic changes in the lungs: In animals that died in two weeks or less after the first injection there were only marked hyperemia, hemorrhage, thrombosis and tar-oil emboli. Several rabbits that survived the last injection for six or more months showed no results from the injections except an occasional obliterated blood vessel. The lungs of seventeen of thirty-two rabbits showed varying degrees of epithelial proliferation and chronic pathologic processes. Except in primary carcinoma of the lung the authors have never observed such an extensive neoplasm-like growth of bronchial and alveolar epithelium in the human lung as was present in the lungs of many of their rabbits. It is probable, therefore, that rabbits possess a species peculiarity whereby the bronchial and alveolar epithelium may undergo extreme grades of hyperplasia and metaplasia without becoming neoplastic. Reservedly, in none of their animals did carcinoma actually develop, but the epithelial growth in several was massive, locally invasive and atypical. The character of the nuclei was not sufficiently

determinative in any case to justify a positive diagnosis of carcinoma. In all cases the changes were of multiple origin, occurring wherever granulation tissue was formed, without acquiring a definitely malignant character.

Juvenile Dementia Paralytica.—Menninger states that, although there are common observations in the juvenile and the adult form of dementia paralytica, certain features are characteristic of the juvenile form of the disease. The characteristic macroscopic changes in juvenile dementia paralytica include a generalized atrophy, often hypoplasia of the brain, a marked leptomeningitic reaction, the frequent occurrence of hydrocephalus and an extensive ependymitis granulosa. The cerebellum often shows atrophy. In rare cases there is an associated formation of gummas in the brain. Because of proliferation of neuroglia, both the cerebrum and the cerebellum are usually very firm in consistency. The characteristic microscopic observations include a generalized round cell infiltration, an extensive proliferation of neuroglia and microglia, an increase in the vascularity with proliferative changes of all the elements of the vessel walls, a reduction in the number of nerve cells in the cortex and changes in the nerve fibers. The frequent appearance of binucleated Purkinje cells in the cerebellum is characteristic of this disease though not limited to it. The author cites a case in which sclerosis of the posterior columns and pyramidal tracts in the spinal cord without symptoms indicating these lesions was observed. One must recognize, however, that hyperactive reflexes can occur if sclerosis of the lateral column predominates over sclerosis of the posterior column. In a small percentage of cases spirochetes can be demonstrated in the brain, the cortex, the basal ganglions and the cerebellum.

Arkansas Medical Society Journal, Fort Smith

31: 191-210 (April) 1935

Carcinoma of Uterus and Treatment. W. D. Smith, Texarkana.—p. 191.
Endocrine Therapy in the Climacteric. G. R. Siegel, Clarksville.—p. 194.
Typhoid Bacillus in Milk and Water Supplies. W. B. Grayson and H. V. Stewart, Little Rock.—p. 197.

California and Western Medicine, San Francisco

42: 145-232 (March) 1935

*Treatment of Chronic Arthritis by Diet and Sunlight. L. Langstroth, San Francisco.—p. 145.
Lymphogranuloma Inguinale: Report of Case Originating in Northern California. F. G. Novy Jr., Oakland.—p. 149.
Chronaxia: Its Theory and Application to Clinical Neurology, with Presentation of Portable Chronaximeter. H. W. Newman, San Francisco.—p. 154.
Breech Extractions in the Home. B. J. Hanley, Los Angeles.—p. 157.
Psychotherapy. G. S. Johnson, San Francisco.—p. 165.
Compulsory Health Insurance. F. L. Hoffman, Philadelphia.—p. 168.

Treatment of Arthritis by Diet and Sunlight.—Langstroth bases his discussion on 100 cases of chronic arthritis, describes the degenerative, proliferative and borderline types and states that degenerative arthritis is usually favorably affected, or completely relieved, by proper dietotherapy. In seventy-two cases treated by diet, five were not improved, thirteen were slightly improved, thirty-nine were much improved and fifteen were completely relieved. The dietary history shows that, when a diet high in protective foods is instituted, relief will be most striking in those cases in which the previous inadequacy has been greatest and particularly when the amount of bread eaten has been greatest. Bread stood out most prominently in the dietary histories as having a relation to improvement when a proper diet was instituted. Physical therapy is a helpful adjunct to dietotherapy at times. Actinotherapy has a good general tonic effect on the tissues; heat and diathermy are useful in spinal arthritis with referred pain down the arm, and massage of the back muscles is helpful occasionally in spinal arthritis. Postural exercises are particularly important in sacro-iliac disease and arthritis of the spine but should be used generally after the pain has been controlled by diet. The approach to proliferative arthritis is different. The patient should be allowed what small amount of activity he is able to take. The full basic diet of protective foods, or as much of it as can be taken, is given at once. Heliotherapy is almost indispensable in proliferative arthritis, and artificial sunlight is a poor substitute. The patients who have done best are those who have moved into regions where sunbathing is possible for eight months of the year. After the patient is thus established and treatment begun there is an interval of several months before improvement begins, and during this period every effort must be made to support his morale. When all signs of activity have disappeared in the joints, massage and passive and active movement are begun and continued as long as there is hope of increasing the range of motion. In the borderline types of arthritis it is best to immobilize the affected joints in some form of splint until the pain is relieved and then gradually to remove it and institute massage, passive motion and diathermy. When this sort of immobilization is added to the dietotherapy and actinotherapy, such a joint will often be restored to full function in a few weeks. While improvement has been marked in both types of arthritis under the treatment outlined, any relaxation of vigilance as to diet in the degenerative group, or rest and sunlight in the proliferative group, will soon bring on symptoms. The author concludes that he has succeeded in arresting the progress of the disease or in restoring painless function, but he cannot say that he cured it in any sense, for the old environmental conditions will allow it to progress again.

Canadian Medical Association Journal, Montreal

32: 233-356 (March) 1935

Cancer. A. Primrose, Toronto.—p. 233.
Id.: The Pathologic Aspect. W. J. Deadman, Hamilton, Ont.—p. 238.
Place of Surgery in Treatment of Carcinoma of Alimentary Tract. D. C. Balfour, Rochester, Minn.—p. 245.
The Rôle of Radiotherapy in the Problem of Malignancy. E. E. Shepley, Saskatoon, Sask.—p. 252.
Acute Appendicitis: Review of Six Hundred and Fourteen Cases, with Especial Reference to Drainage. E. H. Cayford, Montreal.—p. 259.
*Fracture, Dislocation and Fracture-Dislocation of the Spine. K. G. McKenzie, Toronto.—p. 263.
Nickel Dermatitis: Report of Eleven Cases. F. E. Cormia, Montreal, and S. G. Stewart, Atlantic City, N. J.—p. 270.
The "Patch Test" as an Aid in Diagnosis. N. M. Wrong, Toronto.—p. 273.
*Coarctation of the Aorta. H. A. Farris, St. John, N. B.—p. 276.
Strychnine Poisoning in Children. J. R. Ross and A. Brown, Toronto.—p. 282.
Diagnosis and Management of Acute Cholecystitis. R. R. Graham, Toronto.—p. 283.
Treatment of Glaucoma. S. R. Gifford, Chicago.—p. 287.
Blended Fish Oils for Medicinal Purposes: I. Preliminary Laboratory and Clinical Tests. H. N. Brocklesby and R. G. Large, Prince Rupert, B. C.—p. 292.
Radiologic Aspect of Right Upper Abdominal Pain. L. J. Carter, Brandon, Manit.—p. 296.
Management of Ingrowing Toe-Nail. H. S. Dolan, Montreal.—p. 298.

Fracture-Dislocation of the Spine.—McKenzie states that, in the treatment of fractures and dislocations, restoration of the normal anatomic structure is of primary importance. This principle, however, in injuries to the spinal column has been applied only in recent years, and the reason may be attributed largely to excessive fear of causing injury to the cord by attempts at manipulation. It has been found that extensive deformities can be corrected without injuring the subdural structures. Skeletal traction is often the method of choice. High thoracic fractures are treated by hyperextension on a Whitman frame. If the patient is not paralyzed, the Whitman frame can be replaced by a cast after reduction is accomplished. Patients with low thoracic and lumbar crush fractures are allowed to walk a few hours after the application of a plaster cast that holds the spine in an extreme hyperextended position at the site of injury. If paralyzed, these patients are treated on a Whitman frame in a hyperextended position. If they recover from the paralysis, treatment may be ambulatory after the application of a cast to maintain hypertension. The author outlines the care of the skin, bladder and rectum in the paralyzed patient and gives the few indications for open operation.

Coarctation of the Aorta.—Farris reports two cases of coarctation of the aorta, one verified at necropsy. The diagnosis was not difficult when the condition was considered and the pulse and blood pressure in the lower limb were examined. The absence of the appearance of a collateral circulation should not confuse the diagnosis. Any young person with elevated blood pressure should have the femoral pulse palpated and the blood pressure in the arm and leg checked. The small and definitely retarded pulse and the low blood pressure in the leg are important points in the diagnosis. The blood pressure in the leg will usually have to be taken over the popliteal artery,

as in these cases the pulse in the feet and ankles is frequently not to be felt. The prognosis in coarctation of the aorta is good until adult life, especially if the diagnosis is made and the patient limits his activity. Death usually occurs in early middle life.

Colorado Medicine, Denver

32: 177-264 (March) 1935

Fractures of Neck of Femur: Whitman Abduction Treatment. A. Thomas, Denver.—p. 188.
Fractures In and About the Ankle. F. H. Hartshorn, Fort Collins.—p. 192.
Fractures In and Around the Elbow. H. R. McKeen, Denver.—p. 195.
Fractures of the Spine. R. G. Packard, Denver.—p. 199.
Diagnosis of Acute Mastoiditis. H. I. Laff, Denver.—p. 202.
Early Registration of Physicians in Colorado. J. N. Hall, Denver.—p. 207.

Georgia Medical Association Journal, Atlanta

24: 81-118 (March) 1935

Angina Pectoris Associated with Myocardial Disease. J. L. Richardson, Atlanta.—p. 81.
Chronic Coronary Artery Disease (Myocardosis). H. C. Atkinson, Macon.—p. 83.
Respiratory Disturbances Due to Food Allergy. W. C. Waters, Atlanta.—p. 86.
Personal Experience with Veratrum in Pneumonia. J. J. Pilcher, Wrens.—p. 88.
Surgical Management of Renal Calculi. R. Bell, Thomasville.—p. 90.
Allergy. S. A. Anderson, Milledgeville.—p. 92.
Measurement of Work of Heart and Its Clinical Significance. G. L. Walker, Griffin.—p. 96.
Screw Worm Infection of Nasal Mucosa: Case Report. R. W. Richardson, Macon.—p. 100.
*Insulin in Treatment of Typhoid Fever. J. H. Hines and J. R. Walker, Atlanta.—p. 101.
Appendicitis Associated with Multiple Liver Abscesses: Report of Case. F. K. Boland Jr., Atlanta.—p. 102.

Insulin in Treatment of Typhoid.—Hines and Walker administered insulin in addition to the routine treatment of severe cases of typhoid that showed no improvement after forty-five to seventy-two hours of general treatment. Seriously ill patients were given 3 units of insulin three times a day before meals, and this was increased to 10 units as its value was shown. The diet was forced fluids, fruit juices, citrated milk and barley gruel. In a short time the septic symptoms began to clear up, fever to abate and delirium to subside, and forced feeding by tube could be discontinued and a regimen of soft diet, which was easily taken up to a point of 4,500 calories, was begun. The result was most satisfactory, since the disease following the fourth day of insulin therapy had a mild course, convalescence was uncomplicated, and the patient made a complete recovery.

Johns Hopkins Hospital Bulletin, Baltimore

56: 117-182 (March) 1935

Diagnosis of Diseases of Lungs, with Especial Reference to Tuberculosis. C. R. Austrian, Baltimore.—p. 117.
Franklin Paine Mall. H. E. Sigerist.—p. 139.
Metabolism of Isolated Surviving Tissues from Animals Rendered Hyperthyroid with Thyroxine. D. McEachern, Baltimore.—p. 145.

Journal of Immunology, Baltimore

28: 161-240 (March) 1935

Some Observations on Relative Importance of Reticulo-Endothelial Tissues and Circulating Antibody in Immunity: II. Hypersensitiveness and Immunity to Foreign Proteins: Analysis of Parts Played by Tissues and Circulating Antibody in These Two States. F. H. Teale, London, England.—p. 161.
Antigenic Action of Phosphatides: Further Studies of Purified Cephalin. A. Wadsworth, Elizabeth Maltaner and F. Maltaner, Albany, N. Y.—p. 183.
Photodynamic Effect of Methylene Blue on Tetanus Toxin. K. M. Lippert, Nashville, Tenn.—p. 193.
Concentration and Purification of Antimeningococcus Serum: Note. P. P. Murdick and Sophia M. Cohen, Albany, N. Y.—p. 205.
*Merthiolate versus Phenol as Preservative for Diphtheria Toxoids—Diluted and Undiluted at Icebox and Room Temperatures. Olga R. Povitzky and Minnie Eisner, New York.—p. 209.
Effect of Temperature on Antigenic Value of Diphtheria Toxoid. Olga R. Povitzky, assisted by Minnie Eisner, New York.—p. 215.
Quantitative Study of Serum Precipitin in Anaphylaxis in Rabbit. Carol Jackson, New York.—p. 225.

Preservative for Diphtheria Toxoids.—Povitzky and Eisner point out that undiluted or diluted diphtheria toxoids, when kept at icebox temperature and tested after five months, did not show any difference in their antigenic or flocculating value whether preserved with 1:10,000 merthiolate or 0.5 per cent phenol. When kept at room temperature for five months, the phenol preserved toxoid diluted 1:2, though preserving its flocculating value, shows deterioration in its antigenic value. Undiluted toxoids preserved with phenol and kept at icebox temperature for nine and eighteen and five-tenths months do not compare favorably in their antigenic value with the merthiolated toxoid diluted 1:3 and kept in the icebox more than two years. Merthiolated toxoid diluted 1:3 and kept at icebox temperature preserves its antigenic value better than the merthiolated toxoid diluted only 1:2 but kept at room temperature.

Journal of Industrial Hygiene, Baltimore

17: 37-72 (March) 1935

Dust Filtering Efficiency of Human Nose and Its Significance in Causation of Silicosis. G. Lehmann, Dortmund, Germany.—p. 37.
Determination of Benzene in Air. W. A. Cook and J. B. Ficklen, Hartford, Conn.—p. 41.
Treatment of the Common Cold. H. S. Diehl, Minneapolis.—p. 48.
Determination of Comfort Zone for School Children. Ruth C. Partridge and D. L. MacLean, Toronto.—p. 66.

Journal of Nutrition, Philadelphia

9: 261-394 (March 10) 1935

Human Calorimetry: II. Average Temperature of Tissues of Body. A. C. Burton, Rochester, N. Y.—p. 261.
Id.: III. Temperature Distribution, Blood Flow and Heat Storage in Body in Basal Condition and After Ingestion of Food. A. C. Burton and J. R. Murlin, Rochester, N. Y.—p. 281.
Phytin Phosphorus of Corn Component of Rachitogenic Diet. R. S. Harris and J. W. M. Bunker, Cambridge, Mass.—p. 301.
Production and Composition of Sow's Milk. E. H. Hughes and H. G. Hart, Davis, Calif.—p. 311.
Mineral Exchanges of Man: V. Balances of Electrolytes in Case of Hyperparathyroidism. S. H. Bassett, Rochester, N. Y.—p. 323.
Id.: VI. Effect of Extirpation of Parathyroid Tumor on Balances of Electrolytes. S. H. Bassett and Helen E. Van Alstine, Rochester, N. Y.—p. 345.
Statistical Study of Metabolism of Fasting Albino Rat. J. C. Krantz Jr. and C. J. Carr, Baltimore.—p. 363.
Vitamin Content of Sultanina (Thompson Seedless) Grapes and Raisins. Agnes Fay Morgan, Louise Kimmel, Anna Field and P. F. Nichols, Berkeley, Calif.—p. 369.
Vitamin Content of Figs. Agnes Fay Morgan, Anna Field, Louise Kimmel and P. F. Nichols, Berkeley, Calif.—p. 383.

Journal of Pediatrics, St. Louis

6: 287-426 (March) 1935

Good Practice in Modern Education: The Pediatrician and the Pedagogue. P. D. Smith, Winnetka, Ill.—p. 287.
New Possibilities of Prognostic Diagnosis in Tuberculosis of Children. F. von Gröer, Lwow, Poland.—p. 297.
Congenital Dislocation of Hip in Infancy. C. C. Chapple, Philadelphia.—p. 306.
Physical Measurement and Nutritional Status. H. H. Mitchell, Freeport, N. Y.—p. 316.
Brain Tumors in Childhood: Review of Thirty-Eight Cases. C. W. Rand, Los Angeles, and R. J. Van Wagenen, Fresno, Calif.—p. 322.
Suppuration of Middle Ear Complicated by Labyrinthitis, Sinus Thrombosis, Cerebellar Abscess and Cerebellar Hernia with Complete Recovery: Case Report. J. Stein, Brooklyn.—p. 340.
Analysis of One Hundred Cases of Acute Poliomyelitis. C. M. Soto and M. I. Rubin, Philadelphia.—p. 343.
Clinical Experience with Crystalline Vitamin D: Influence of Menstruum on Effectiveness of Antirachitic Factor. J. M. Lewis, New York.—p. 362.
Observations on Presence of Complement in Cerebrospinal Fluid in Various Pathologic Conditions of Central Nervous System. L. D. Fothergill, Boston.—p. 374.
Gangrene of the Foot Following Measles. J. A. Winstead, Rocky Mount, N. C.—p. 382.
*Acrodynia: Its Possible Cause. C. V. Calvin and C. C. Taylor, Bridgeport, Conn.—p. 385.
Improved Container for Hypodermic Syringe. A. W. Jacobsen, Buffalo.—p. 390.

Acrodynia.—Calvin and Taylor report a case of acrodynia in which they were able to determine the source of a toxic agent. To the three most commonly advanced theories as to the cause of acrodynia (that the condition is an infectious one, that it is an avitaminosis and that it is due to dysfunction of the vegetative nervous system) they add a fourth: that acrodynia is the result of metallic poisoning acting on the vegetative nervous system in peculiarly susceptible persons. In their opinion the metals causing this poisoning may be arsenic and lead in combination, such as is found in the widely used insecticide arsenate of lead. Some of their reasons for the theory are that before the use of insecticides the disease was unknown

and the results of treatment point to the fact that the disease is due to the ingestion of some toxic material. Various treatments have been advocated, ranging all the way from removal of the tonsils to special diets. In almost every instance the change in diet has been brought about by removing the patient to a hospital. That lead arsenate may be the toxic article in the diet is indicated in other reports. Apparently the length of time during which the toxic agent is ingested before a change in diet is made has a great deal to do with the ultimate outcome of the disease. Postmortem observations of the nervous system are not at all incompatible with what one would expect to find in chronic lead poisoning. The authors feel that this symptom complex may well be due to the action of arsenic and lead in combination. In the case presented they know that they were dealing with arsenic and lead poisoning as well, but the clinical picture was that of acrodynia.

Journal of Pharmacology & Exper. Therap., Baltimore

53: 251-384 (March) 1935

Ether Anesthesia: Concentrations in Inspired Air and in Blood Required for Anesthesia, Loss of Reflexes and Death. B. H. Robbins, Nashville, Tenn.—p. 251.
Oral Toxicity of 6-Alkyl-Meta-Cresols. H. W. Brown and P. D. Lamson, Nashville, Tenn.—p. 264.
Splenic Derivatives and Erythrocytic Fragility. M. M. Ellis, H. L. Motley and M. D. Ellis, Columbia, Mo.—p. 273.
*Cardiac Irregularities Produced by Ephedrine After Digitalis. M. H. Seevers and W. J. Meek, Madison, Wis.—p. 295.
Comparative Effect of Caffeine Alone and Caffeine Beverage (Coffee) on Reaction Time in Normal Young Adults. R. H. Cheney, Brooklyn.—p. 304.
Action of Beta-Dinitrophenol and Gamma-Dinitrophenol and of Mononitrophenols on Yeast Respiration. J. Field 2d, A. W. Martin and S. M. Field, San Francisco.—p. 314.
Intrapulmonic Absorption of Iodine. Versa V. Cole, R. H. Dunn and G. M. Curtis, Columbus, Ohio.—p. 327.
Observations on Effects of Dihydro-Morphinone-Hydrochloride (Dilaudid) on Intestinal Activity of Unanesthetized Dogs. J. B. Mitchell Jr. and B. K. Harned, Memphis, Tenn.—p. 331.
Quantitative Action of Acetylcholine and Histamine on Guinea-Pig Uterus. Margaret Dorothy Webster, Durham, N. C.—p. 340.
Action of Diuretics Injected into One Kidney of Aglomerular Toadfish. R. N. Bieter, Minneapolis.—p. 347.
Heat Regulation and Water Exchange: XIX. Reversal of Febrile Liver Hydration with Amidopyrine Antipyresis. H. Sherman and H. G. Barbour, New Haven, Conn.—p. 350.
*New Experimental Approach to Study of Rôle of Reticulo-Endothelial System in Cure of Trypanosomiasis. C. C. Pfeiffer and A. L. Tatum, Madison, Wis.—p. 358.
Hyperglycemic Constituent of Posterior Lobe Pituitary Extract. D. V. Holman and H. C. Ellsworth, Montreal.—p. 377.

Cardiac Irregularities Produced by Ephedrine After Digitalis.—Seevers and Meek recorded the effect of ephedrine on cardiac rhythm by the electrocardiograph after the intravenous injection of the drug into digitalized dogs. Doses of the two drugs were of a magnitude to allow of clinical comparison. Amounts of digitalis preparations that did not in themselves alter cardiac rhythm greatly prolonged the duration of arrhythmias produced by ephedrine. In some cases arrhythmias were brought out by the combined poisoning that had not occurred with either drug used singly. Digitalization tended to increase the number of ephedrine irregularities of ventricular type. Weakness and prostration were commonly observed during the combined poisoning. Although the arrhythmias were of a serious nature, no deaths occurred.

Study of Reticulo-Endothelial System in Trypanosomiasis.—According to Pfeiffer and Tatum, if trypanosomes are treated in vivo for five minutes with 5 mg. of arsenoxide per kilogram of body weight and the rat's blood is then placed in a test tube, the trypanosomes do not die or disappear in fifteen minutes as they do in vivo but continue to live on for eighty minutes. The same is true if the rat is killed five minutes after treatment, when the trypanosomes instead of disappearing from the dead host in fifteen minutes may be found and are still infective for an average of seventy-five minutes. Transplants of the organs of a treated rat taken at the time of disappearance of the trypanosomes from the blood stream indicate a greater accumulation of trypanosomes in the liver than in any other organ. Acute experiments in which the liver, spleen and kidneys are ligated support the foregoing data in that the ligation of the liver is the only procedure which materially lengthens the time of disappearance. The undoubted part played by the spleen under other experimental conditions appears to be eclipsed by the activity of the liver under the conditions described. Since the drug has no effect on "arsenic resistant" trypanosomes in vivo, the logical conclusion is that arsenoxide intoxicates the normal trypanosomes, which are then removed from the circulating blood and subsequently destroyed through the activity of the reticulo-endothelial system.

Journal of Urology, Baltimore

33: 201-330 (March) 1935

Solitary Renal Cysts: Their Symptoms When Situated at Upper Pole of Right Kidney. W. C. Quinby and E. F. Bright, Boston.—p. 201.
*Frequency of Occurrence of Occult Carcinoma of the Prostate. A. R. Rich, Baltimore.—p. 215.
Morphology of Small Prostatic Carcinoma. R. A. Moore, New York.—p. 224.
*Carcinoma of the Prostate with Metastases. R. C. Graves, Boston, and R. E. Militzer, Wrentham, Mass.—p. 235.
Epithelioma of the Penis. A. L. Dean Jr., New York.—p. 252.
*Study of Dissociating Streptococci and Their Electrical Charges in Infections of Genito-Urinary Tract. N. J. Heckel, L. B. Jensen and I. H. Wood, Chicago.—p. 284.
Recent Advances in Instrumental Urology. J. F. McCarthy, New York.—p. 303.
New Female Urethroscope and Infant Vaginoscope. P. M. Butterfield, New York.—p. 310.
Causes of Death After Urologic Operations: Study Based on One Hundred and Sixty-Eight Cases with One Hundred and Nineteen Autopsies. A. Hyman and W. H. Mencher, New York.—p. 315.

Occult Carcinoma of the Prostate.—In 292 consecutive necropsies on men aged 50 or more, who died from a variety of causes, Rich states that frank carcinoma of the prostate was found in the routine microscopic section in forty-one. There is little doubt that a thorough search throughout each gland would have brought to light an even greater number of these tumors, many of which were so small that they were not seen macroscopically at the time of necropsy. The number discovered, however, indicates plainly that cancer of the prostate is considerably more frequent than is ordinarily supposed. In 65.8 per cent of the forty-one cases the tumor was not recognized clinically, having been in most cases of a size too small to have produced symptoms or to have attracted attention on physical examination. The tumors were most often found near the outer margins of the gland and, even when only a few millimeters in size, showed a tendency to invade the capsule.

Carcinoma of Prostate with Metastases.—Graves and Militzer made a study of eighty-one cases of carcinoma of the prostate with metastases. In all but six cases, metastases to the bone were found either by roentgen examination or at necropsy. The pelvis and sacrum were involved in 85 and the lumbar spine in 59 per cent of the cases. Pathologic fractures were observed in five instances. Treatment of the local disease was limited necessarily to measures of palliation. The plan of therapy in carcinoma of the prostate with metastases cannot be standardized, and the procedure adopted in each case will vary with the needs of the individual patient. Transurethral resection sometimes will avoid the need for more extensive surgery. High voltage x-rays and radium proved to be the most effective agents for the relief of pain due to metastases. Postmortem examinations were made in 74 per cent of the patients who died in the hospital. Metastases other than in bone were found most often in the lymph nodes, lungs and liver. Pyelonephritis was the direct cause or the most important contributing cause of death in 41 per cent. Clinically advanced renal infection may exist without significant pain and tenderness in the region of the kidney. Extensive pyelonephritis may be present without marked elevation of blood nitrogen, and the test of renal function with phenolsulphonphthalein frequently affords a more accurate picture of the degree of kidney damage than do blood chemistry determinations.

Electrical Charges on Streptococci in Genito-Urinary Tract.—The technic of Heckel and his associates for studying the problem of dissociating streptococci in infections involves the determination of electrical surface charges on the bacteria, the determination of specific antibodies in the patient's serum by means of cataphoresis and the application of the newer knowledge of bacteriology causing the infection. They examined twenty cases of prostatovesiculitis to see if they could correlate the results obtained from the cataphoresis technic and the clinical symptoms presented by the cases, together with a relationship between the specificity, infectivity and virulence of

the infection and the disease process. Practically all these cases showed symptoms of arthritis or neuritis or a combination of the two. All other foci of infection, such as teeth and tonsils, had been removed and sinuses drained, without any improvement in their systemic symptoms. In the majority of the cases the attention was not directed to the prostate until late in the course of the disease. In every case that presented symptoms of arthritis or neuritis, the prostate was infected. In a majority of these cases streptococci were found, and the electrical charges on the streptococci showed direct correlation with the specificity of the infection. Of the twenty patients, eleven were treated with heat killed vaccines prepared from the streptococci isolated from the prostate. Four of the patients were completely cured of their systemic symptoms, six were greatly improved and one showed no improvement. With their technic the authors have been able to isolate and determine the infecting microbes, usually streptococci, in a given case of "nonspecific" infection of the genito-urinary tract. Certain oxidizing types of streptococci encountered in the study have shown a virulent and nonvirulent phase that could be correlated with morphologic and biophysical characteristics.

New England Journal of Medicine, Boston

212: 413-462 (March 7) 1935

Ectopic Testicle as Cause of Ureteral Dilatation: Case Report. G. C. Prather, Boston.—p. 413.
Adenocarcinoma of Kidney Recurrent After Twenty Years. R. C. Graves and R. E. Mabrey, Boston.—p. 416.
Keratodermia Blennorrhagicum (Gonorrheal Dermatitis). A. Riley, Boston.—p. 417.
Calcified Hydrocele of Tunica Vaginalis Testicle: Case Report. C. J. E. Kickham, Boston.—p. 419.
Report of Unusually Large Malignant Growth in Undescended Testicle. E. J. O'Brien, Boston.—p. 420.
Report of Urologic Case Discovered in Course of Examination for Other Ailment. E. H. Trowbridge, Worcester, Mass.—p. 421.
Testicular Biology, Scrotal Function and Male Sex Hormone. C. R. Moore, Chicago.—p. 422.
Visual Mechanism in Diabetes Mellitus: Comparative Study of Two Thousand and Two Diabetics, and Four Hundred and Fifty-Seven Nondiabetics for Control. J. H. Waite and W. P. Beetham, Boston. —p. 429.

212: 463-500 (March 14) 1935

Chemical Nature of Cataract in the Diabetic. Helen Updegraff Carey and Hazel M. Hunt, Boston.—p. 463.
Chronic Gastritis: Clinical Discussion Based on Gastroscopic Examination. E. B. Benedict, Boston.—p. 468.
Some Experiences in Treatment of Young Diabetics from the Point of View of the General Practitioner. Barbara Beattie, Littleton, N. H. —p. 473.

Northwest Medicine, Seattle

34: 75-110 (March) 1935

Large Quantities of Fluids Intravenously: Principles and Practice for Their Use. C. R. Jensen, Seattle.—p. 75.
*Treatment of Severe Constipation by Physiologic Surgical Release. P. G. Flothow, Seattle.—p. 80.
Fractures of Vertebrae with Spinal Cord Lesions: Indications for Laminectomy. A. J. McLean, Portland, Ore.—p. 84.
Low Back Pain: Differential Diagnosis and Treatment. E. W. Rockey, Portland, Ore.—p. 89.
Varicose Veins: Observations on Treatment. E. A. Nixon, Seattle.—p. 91.
Outbreak of Dysentery Caused by the Sonne Type Bacillus. H. J. Sears, J. B. Bilderback, C. G. Ashley and Martha Rohner, Portland, Ore.—p. 95.
The Prostate as a Focus of Infection in Trauma. T. E. P. Gocher, San Francisco.—p. 98.

Treatment of Severe Constipation.—Flothow reports ten cases of severe constipation in which the left lumbar sympathetic ganglionated chain, including the first four lumbar ganglions, has been removed. A comparatively normal intestinal habit has been established in eight cases. One of the failures was due to an extreme degree of asthenia, the other to organic pathologic disorders. The sympathetic innervation of the internal sphincter and the lower part of the colon travels by way of the lumbar ganglionated chain and the superior hypogastric plexus. The operation consists in interruption of the sympathetic fibers, which cause spasticity of the internal sphincter and inhibit the propulsive action of the parasympathetic nerves. Cases are selected only from that class of subjects in whom constipation is a menace to health and in whom thorough medical measures have failed. The surgeon has the choice of two approaches, removal of the superior hypogastric plexus or of the left lumbar sympathetic chain. The author performs the latter operation because of its simplicity and safety.

Oklahoma State Medical Assn. Journal, McAlester

28: 79-116 (March) 1935

Mechanical Partial Obstruction of Colon by Pericolic Membrane. J. H. Robinson, Oklahoma City.—p. 79.
Paranoia and Paranoid Thinking. M. S. Gregory, Oklahoma City.—p. 82.
Parathyroidism. A. McMahon, St. Louis.—p. 87.
Explanation and Evaluation of Prostatic Resection Addressed to the General Practitioner. E. H. Fite, Muskogee.—p. 93.
Terminal Ileitis. V. H. Musick, Oklahoma City.—p. 95.
Volvulus: Torsion of the Whole Mesentery. H. M. McClure, Chickasha.—p. 100.

Pennsylvania Medical Journal, Harrisburg

38: 389-464 (March) 1935

Diagnosis of Leukemia in Childhood. A. F. Abt, Chicago.—p. 389.
Preoperative and Postoperative Treatment of the Jaundiced Patient. H. R. Owen, Philadelphia.—p. 395.
Pityriasis Rosea: Clinical Varieties and Etiology. T. Butterworth, Reading.—p. 400.
Diagnosis of Ectopic Pregnancy: Analysis of One Hundred and Forty-Five Consecutive Cases. D. B. Ludwig, Pittsburgh.—p. 403.
Early Diagnosis of Allergic Disease of Respiratory Tract. J. A. Clarke Jr., Philadelphia.—p. 408.
Will America Copy Germany's Mistakes? Results of Half a Century's Practice of Social Insurance in the Land of Its Inception: German Labor Economist Offers New Plan to Avoid Pitfalls of Old One. G. Hartz.—p. 411.

Public Health Reports, Washington, D. C.

50: 385-420 (March 22) 1935

Bacterial Purification Rates in Polluted Water. J. K. Hoskins.—p. 385.
*Weil-Felix Reaction in Experimental Rocky Mountain Spotted Fever and Certain Other Typhus-like Diseases. G. E. Davis.—p. 404.

Weil-Felix Reaction in Rocky Mountain Spotted Fever.—Davis shows that agglutinins of Proteus OX_2, as well as for OX_{19}, appear in significant titer in the serum of rabbits following injection with the passage viruses of Rocky Mountain spotted fever or São Paulo typhus. Although these agglutinins are perhaps of the group type, they cannot be so considered according to Felix's criteria. Following similar injections with passage virus of boutonneuse fever, Weil-Felix tests with the available Proteus X strains are essentially negative. The Weil-Felix reaction with rabbit serums confirms former observations as to the relationships of spotted fever, São Paulo typhus and boutonneuse fever. The presence of agglutinins of X_2 type in human and rabbit spotted fever serums and their absence in human and rabbit endemic typhus (United States) serums suggest that the Weil-Felix reaction may aid in the differential diagnosis, especially in regions where both diseases are endemic.

Radiology, Syracuse, N. Y.

24: 261-390 (March) 1935

Treatment of Carcinoma of Pharynx and Larynx. L. H. Garland, San Francisco.—p. 261.
Intra-Oral Cancer and Its Treatment. O. N. Meland, Los Angeles. —p. 276.
*Evaluation of Roentgen Treatment of Laryngeal Carcinoma: Report of Cases. I. S. Hirsch and S. M. Baum, New York.—p. 281.
Radio Frequency High Voltage Apparatus for X-Ray Therapy. R. S. Stone, M. S. Livingston, D. H. Sloan and M. A. Chaffee, San Francisco.—p. 298.
*Diagnostic and Therapeutic Value of Intratracheal Use of Iodized Oil in Cases of Intractable Asthma, with Especial Reference to Its Use as Contrast Medium and Physiochemical Mechanism on Which Its Therapeutic Value Is Based. R. M. Balyeat, L. E. Seyler and H. A. Shoemaker, Oklahoma City.—p. 303.
Simultaneous Multiple Field Irradiation with a 4.5-Gram Radium Pack. M. C. Reinhard and H. L. Goltz, Buffalo.—p. 315.
Hyperinsulinism: Three Cases Relieved by Radiation. S. C. Barrow, Shreveport, La.—p. 320.
Experiences in Irradiation Treatment of Hyperthyroidism. S. P. Perry, Chicago.—p. 326.
Radiotherapeutic Treatment of Hypertension and Diabetes. J. H. Hutton, Chicago.—p. 330.
Biliary Colic Fistula. H. B. Podlasky, Milwaukee.—p. 345.
Artefacts in Roentgen Films. G. C. Henny, Philadelphia.—p. 350.
One Thousand Sphenoids Examined in Both the Granger and Mentovertex Positions. A. Granger, New Orleans.—p. 357.
Some Reflections on Etiology of Köhler's Disease. A. Zeitlin, Moscow, U. S. S. R.—p. 360.

Roentgen Treatment of Laryngeal Carcinoma.—Hirsch and Baum state that: 1. In intrinsic cases clinical cures can be obtained by roentgen treatment in cordal, glottic or subglottic, noninfiltrating, keratinizing, fully differentiated squamous cell epitheliomas. In such cases surgery gives equally good results, but with a lesser degree of conservation of func-

tion and with an average operative mortality of about 15 per per cent. 2. In extrinsic cases in which the tumor involves the epiglottis, glosso-epiglottic folds, valleculae, pyriform sinus, hypopharyngeal and lateral pharyngeal and postcricoid regions the prognosis is usually unfavorable, owing to the tendency to rapid spread and metastatic glandular involvement. In this group, surgery gives a high mortality and offers no assurance of cure. Roentgen therapy can produce a clinical cure in this group with cervical involvement, or, if the case is hopelessly advanced, palliation, comfort and prolongation of life.

Intratracheal Use of Iodized Oil in Asthma.—Balyeat and his associates believe that an ideal medium for the treatment of the mechanical factor in intractable asthma is an iodized oil that is nonirritating, nonabsorbable, of moderate viscosity, of a sufficient gravity (from 1.225 to 1.4) so the oil is not easily coughed up and of an iodine content sufficiently high to make it a good contrast medium for bronchographic purposes. The intratracheal method of administering the oil is the procedure of choice for diagnostic and therapeutic purposes. Usually, only the lower section of the bronchial tree need be injected when the oil is used as a therapeutic measure in asthma. The filling of the left lower section is somewhat difficult; the correct position of the patient is important. For bronchograms, from 15 to 20 cc. of iodized oil should be put on each side. For therapeutic purposes, from 5 to 10 cc. should be given at weekly, biweekly or monthly intervals. Of the fifty cases of intractable asthma in which the authors obtained poor results by allergic management, they obtained good results in 70 per cent by combining the use of iodized oil intratracheally with allergic management. The therapeutic value of iodized oil given intratracheally to the intractable asthmatic patient appears to be due primarily to the mechanical effect of the oil. The intratracheal use of iodized oil cannot in itself cure a patient suffering from allergic asthma, but it is of inestimable value as a means of forcing up bronchial plugs and replacing pockets of pus with a nonirritating, nontoxic substance. In the treatment of intractable asthma, eliminative measures and desensitization against the substances to which the patient is specifically sensitive are of first importance, and the intratracheal use of iodized oil in the bronchial tubes is next in importance. A combination of the specific and the mechanical is ideal treatment in cases of intractable asthma. The authors feel that iodized oil is an indispensable measure in the treatment of cases of intractable asthma.

Southern Medical Journal, Birmingham, Ala.

28: 197-288 (March) 1935

Transurethral Prostatic Resection: Report of Five Hundred and Fifty-One Resections. H. L. Kretschmer, Chicago.—p. 197.
Treatment of Mikulicz's Disease. F. M. Hodges, Richmond, Va.—p. 205.
Malignancy of Upper Maxilla. H. Dupuy, New Orleans.—p. 209.
Bone Tumors. R. D. Schrock, Omaha.—p. 213.
Surgical Management of Destruction of Common Bile Duct Without Biliary Fistula. F. P. Herff, San Antonio, Tex.—p. 216.
Empyema in Children with Analysis of One Hundred and Three Cases. J. M. Mason, Birmingham, Ala.—p. 219.
Empyema: Rib Resection with Open Drainage versus Nonopen Method. D. C. Donald, Birmingham, Ala.—p. 224.
Obstetrics as Community Problem. G. W. Kosmak, New York.—p. 231.
Progress and Problems in Gynecology. J. W. Turner, Atlanta, Ga.—p. 237.
Relation of Trauma to Abortion, Premature Delivery and Uterine Bleeding. L. E. Burch, Nashville, Tenn.—p. 242.
Lid Control Sutures in Intracapsular Operation for Senile Cataract. J. L. McCool, San Francisco.—p. 245.
Vitamin Therapy. J. A. Ward, Birmingham, Ala.—p. 249.
Sugar Metabolism: Its Symptomatic Relation to Neurologic and Psychiatric Disorders. H. R. Masters, Richmond, Va.—p. 254.
Nutritional Failure as Clinical Problem. J. S. McLester, Birmingham, Ala.—p. 258.
Food Allergy: Common Problem in Practice. A. H. Rowe, San Francisco.—p. 261.
Allergic Headache. W. T. Vaughan, Richmond, Va.—p. 267.
Clinical Significance of Changes in First Heart Sound. G. L. Carlisle, Dallas, Texas.—p. 269.
Jaundice as a Symptom. O. C. Melson, Little Rock, Ark.—p. 271.
The Human Breast and Its Function. L. R. DeBuys, New Orleans.—p. 272.
Control of Tuberculosis in Childhood. J. W. Amesse, Denver.—p. 276.
Periodic Health Examinations for Children. F. P. Gengenbach, Denver.—p. 278.
Enlarged Nursing Program in the State Board of Health and the Trend in Maternal Mortality. H. Hanson, Jacksonville, Fla.—p. 281.

Southern Surgeon, Atlanta, Ga.

4: 1-84 (March) 1935

Carcinoma and Sarcoma of the Esophagus. C. Jackson, Philadelphia.—p. 1.
Osteomyelitis of Jaws. J. B. Brown, St. Louis, and P. C. Tung, Peiping, China.—p. 12.
Trifacial Neuralgia. E. F. Fincher Jr., Atlanta.—p. 27.
Vascular Diseases of Extremities: Their Treatment. P. G. Flothow, Seattle.—p. 36.
The Fracture Problem: Report of Study of Ten Thousand and Eighty-Two Fractures Treated at the Newell Clinic 1908 to 1934. E. T. Newell, Chattanooga, Tenn.—p. 44.
Treatment of Deformities from Burns. O. L. Miller and W. M. Roberts, Charlotte, N. C.—p. 52.
Postoperative Treatment. W. W. Babcock, Philadelphia.—p. 63.

Southwestern Medicine, Phoenix, Ariz.

19: 65-102 (March) 1935

Treatment of Gonorrheal Infections in the Female. L. M. Miles, Albuquerque, N. M.—p. 65.
Outbreak of Food Poisoning at the University of Arizona. W. B. West, Tucson, Ariz.—p. 71.
Silicosis. J. A. Britton, Chicago.—p. 73.
Surgical Pathology of Peritonitis. J. W. Kennedy, Philadelphia.—p. 75.
Borderline Medical and Surgical Conditions. J. H. Musser, New Orleans.—p. 78.
Cancer. J. H. Vaughan, Amarillo, Texas.—p. 83.
Bromide Intoxication. C. W. Tidd, Topeka, Kan.—p. 87.
Postoperative Intestinal Obstruction. J. W. Hannett, Albuquerque, N. M.—p. 89.

Surgery, Gynecology and Obstetrics, Chicago

60: 635-762 (March) 1935

*Precancerous and Carcinoid Lesions of Cervix Uteri, with Comments on the Schiller Test. E. Henriksen, Baltimore.—p. 635.
Fulminant Sinus Disease: Study of Pathogenesis. F. L. Lederer, Chicago.—p. 645.
Normal Human Ovum in Primitive Streak Stage (Approximately Eighteen and One-Half Days). H. O. Jones and J. I. Brewer, Chicago.—p. 657.
Studies on Absorption and Excretion in Segments of Colon of Man. F. S. Curry and J. A. Bargen, Rochester, Minn.—p. 667.
Some Principles of Local Anesthesia. L. Adam, Budapest, Hungary.—p. 675.
Variations of Female Pelvis in Relation to Labor. H. Thoms, New Haven, Conn.—p. 680.
Cystectomy: Method of Retroprostatoseminal Vesiculocystectomy. F. Hinman, San Francisco.—p. 685.
*Transperitoneal Nephrectomy for Malignant Tumors of Kidney. L. R. Wharton, Baltimore.—p. 689.
Lymphangiomas of the Great Omentum. A. H. Montgomery and I. J. Wolman, Chicago.—p. 695.
*Branchial Carcinoma: Lateral Cervical Neoplasm. G. Crile and J. E. Kearns Jr., Cleveland.—p. 703.
Rupture of Kidney Pelvis: Review of Literature. B. S. Abeshouse, Baltimore.—p. 710.
Fractures of Humerus: End Results from Treatment. R. K. Ghormley, Rochester, Minn., and R. J. Mroz, Rockford, Ill.—p. 730.
Acute Mechanical Intestinal Obstruction: Mortality With and Without Enterostomies: Based on Review of Two Hundred and Forty-One Cases from Records of the Cook County Hospital. A. Fey, Galesburg, Ill., and W. R. Cubbins, Chicago.—p. 738.
Spontaneous Rupture of Common Bile Duct: Sequel of Choledochostomy. W. L. Wolfson and D. R. Levine, Brooklyn.—p. 746.

Precancerous and Carcinoid Lesions of Cervix Uteri.—Henriksen is of the opinion that the microscopic diagnosis of cervical cancer will not be improved until both the clinician and the pathologist learn more about pseudomalignant and possible promalignant lesions of the cervix. Mitotic figures are occasionally seen in the basal layer of the normal cervical epithelium and are to be looked on as evidence of the normal growth and repair of the cervix. Cervical lesions may be spoken of as "precancerous" when it is understood that the term implies that they might, though not necessarily, become cancerous. The microscopic picture of these lesions is less perplexing if the mechanism of development is understood. That cancer does originate in the so-called metaplasias is illustrated by one case. Leukoplakia of the cervix is a pathologic entity that may show cellular changes suggestive of cancer, though invasion is always lacking. Two cases showing microscopic changes similar to both Bowen's disease and extramammary Paget's disease are described, and also a case of intracervical carcinoma, diagnosed with the aid of the Schiller test, in which the malignant growth extended over the entire endometrial surface of the uterus. The importance of biopsy is indisputable, but its value is increased if the specimen is immediately fixed and serial sections are made. Serial sections are of especial importance in cases of suspected early cancer.

The application of compound solution of iodine with the atomizer simplifies the test. The Schiller test is undoubtedly of some value in the diagnosis of early cancer; whether it is a specific for the absence of the cancer is questionable.

Transperitoneal Nephrectomy for Malignant Tumors of Kidney.—Wharton believes that transperitoneal nephrectomy is safer than lumbar nephrectomy for the removal of renal tumors. He presents the following technic: A long rectus incision is used. Since the size of renal tumors can be reduced by preoperative irradiation, it is unnecessary to make a right angle extension of this incision into the flank. Exposure is improved by hyperextending the back as in an operation on the gallbladder. The anesthesia must be fairly deep. The operator works directly across the peritoneal cavity. The hyperextension of the back brings the lumbar wall nearer to the surface and the big incision makes it entirely unnecessary to work in a hole. The intestine is pushed into the opposite half of the abdomen and the layer of posterior peritoneum is incised at least 2.5 cm. from the lateral margin of the large intestine and mobilized before it is cut well above the flexure of the large intestine, which is then pushed medially and held back by gauze and retractors. The peritoneum is also pushed away from the region of the renal pedicle and the kidney. The duodenum goes with the peritoneum and ascending colon. If the kidney tumor and the peritoneum are intimately adherent, a wide patch of peritoneum may be left on the kidney and removed with the tumor. The elevation of the posterior peritoneum uncovers the retroperitoneal mass. The renal pedicle and pelvis are hidden under a layer of loose fat. In ligating the renal pedicle, it may often be advantageous to mobilize the lower pole of the kidney. It is always necessary to push the peritoneum and all other structures away from the region of the renal pedicle before attempting to isolate it. Before the renal artery and veins are clamped and controlled, it is always wise to expose them thoroughly and remove the fat and areolar tissue by which they are concealed. They should be elevated from the bed in which they lie so that a ligature may be passed around them. It is essential that there should be no back bleeding from the tumor or kidney at any time, as this blood will probably contain cells of the tumor. After the blood vessels have been ligated and cut, the removal of the tumor is usually fairly simple. All the perirenal tissue possible should be removed, including the perirenal fat, Gerota's capsule (the perirenal fascia), a long strip of the ureter and all the areolar tissue that can be removed safely. The posterior layer of peritoneum is closed tight by a continuous suture of plain catgut. If drainage is necessary, it can be provided through a stab wound, extraperitoneally, in the flank.

Branchial Carcinoma.—Crile and Kearns discuss twenty-eight cases of branchial carcinoma, all of which were definitely diagnosed. The only available methods of treatment are irradiation with radium or the x-rays and radical removal. Roentgen treatment is purely palliative. The method of treatment that they employed in most of their cases has been a combination of surgery and x-rays. Nitrous oxide anesthesia should be employed. Of the twenty-eight patients, eleven were treated by surgery alone. Two died from postoperative bronchopneumonia. Five left the hospital, four in good condition on discharge, but the fifth patient was unable to swallow owing to paralysis of the glossopharyngeal nerve. Two of the four remaining patients died, nine and ten months after operation. Six patients were treated by surgery and postoperative high voltage roentgen radiation. One died following a laryngectomy, which was performed because of the extension of the tumor into the pyriform sinus. Two others died, one at the end of three months after operation after only one course of roentgen irradiation, the other at the end of eleven months after operation following three courses of irradiation over the entire side of the neck and head. One patient, who was treated with one course of radiation preceding operation, and postoperative radiation with x-rays and 2,080 mg. hours of radium, died twelve months after operation. Of five patients treated only with roentgen radiation distributed over the head and neck, two died within three months and one lived seven months. One patient was treated with radium alone, receiving 2,340 mg. hours at the first treatment and 2,600 mg. hours two months later, and died six months after the first treatment. The four patients treated with both roentgen and radium radiation died within a period of nine months after the first treatment. Only palliative results can be expected from any treatment, as the disease is usually rapidly fatal. It seems probable that radical excision followed by irradiation offers the best chance of relief to the patient having a branchiogenic carcinoma.

Tennessee State Medical Assn. Journal, Nashville

28: 93-136 (March) 1935

The Relation of Allergy to Ophthalmology. Kate Savage Zerfoss, Nashville.—p. 93.
Hypertensive Heart, the Most Common Form of So-Called Chronic Myocarditis. E. A. Guynes, Knoxville.—p. 100.
Analysis of Abdominal Pain. A. L. Rule, Knoxville.—p. 105.
The Nervous Patient. J. C. Hill, Knoxville.—p. 107.
General Consideration of Diseases of Thyroid Gland. N. S. Shofner, Nashville.—p. 110.

Texas State Journal of Medicine, Fort Worth

30: 681-740 (March) 1935

Choice of Therapeutic Agents in Treatment of Cancer. E. Fischel, St. Louis.—p. 688.
What Is the Place of Radium in Uterine Body Cancer? J. T. Moore, Houston.—p. 692.
Prevention, Diagnosis and Treatment of Cancer. S. J. Wilson, Fort Worth.—p. 696.
Nodular or Adenomatous Goiter. J. W. Hendrick, Amarillo.—p. 698.
The Radiologist and the Goiter Problem. J. W. Cathcart, El Paso.—p. 703.
Adequate Prenatal Care. M. A. Davison, Marlin.—p. 706.
Some Good and Bad Procedures in Obstetrics. H. H. Cartwright, Breckenridge.—p. 711.
Ectopic Pregnancy: Analysis of Fifty-Seven Cases. J. T. Krueger, Lubbock.—p. 715.
Vertigo. S. C. Applewhite, San Antonio.—p. 719.
Closer Cooperation of the Diagnostic Laboratory and the Physician. G. Turner, El Paso.—p. 721.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

43: 119-176 (March) 1935

Malignant Exophthalmos and Operative Approach. G. W. Swift, Seattle.—p. 119.
*Pituitary Basophilism: Report of Case. F. R. Teachenor, Kansas City, Mo.—p. 127.
Ununited Fractures of Neck of Femur. M. S. Henderson, Rochester, Minn.—p. 134.
Treatment of Fractures of Femur. P. A. Bendixen, Davenport, Iowa.—p. 143.
Skull Fractures and Cranial Injuries: Their Treatment and Sequels. O. J. Fay, Des Moines, Iowa.—p. 150.
Fractures of Metacarpals and Phalanges. R. W. McNealy and M. E. Lichtenstein, Chicago.—p. 156.
Ruptured Membranes at Onset of Labor. E. J. Krahulik, Los Angeles.—p. 162.

Pituitary Basophilism.—Teachenor submits the clinical and postmortem observations of a case of pituitary basophilism in which fatal erysipelas intervened so promptly after the recognition of the basophilism as to preclude further examinations. The unusual feature of the case is the infiltration of the adrenals, the kidneys and bone with cells which are identical with those of the pituitary neoplasm. The presence of these neoplastic cells in the kidneys and bone tends to disprove that basophil adenoma stimulates the growth of basophil cells in other organs of the endocrine system. Other features of the case are the high basal metabolic rate without loss of body weight and without evidence of thyroid hyperactivity and the marked uterine hyperplasia in the presence of marked involutional changes in the ovaries. It is not clear why an adenoma of the basophil cell, which is thought to secrete a gonad stimulating or sex maturing hormone, produces a precocity of sexual characteristics in children and eventually underactivity of sex function rather than stimulation.

Yale Journal of Biology and Medicine, New Haven

7: 275-382 (March) 1935

The Dissection Riot of 1824 and the Connecticut Anatomic Law. H. Hamlin, New Haven, Conn.—p. 275.
Present View of Collapse Therapy in Pulmonary Tuberculosis. W. B. Soper, New Haven, Conn.—p. 291.
Specificity of Tobacco Antigen. J. B. Lounsbury and A. W. Oughterson, New Haven, Conn.—p. 305.
Unusual Variation of the Aortic Arch. E. V. Carvey, S. R. Gaston and H. B. Ferris, New Haven, Conn.—p. 317.
Oliver Wendell Holmes Visits Yale. C. Barker, New Haven, Conn.—p. 319.
Pituitary Basophilism and Hypertension. Leona Baumgartner, New York.—p. 327.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

9: 201-222 (March) 1935

A Year of Short Wave Therapy. Justina Wilson.—p. 203.
Use of Diathermy in Surgery. J. C. Ainsworth-Davis and T. H. Sellors.—p. 205.
Clinical Observations on Chronic Pharyngitis and Its Treatment by Cold Quartz Lamp. J. D. Hindley-Smith.—p. 210.
Physical Treatment of Pulmonary Diseases, with Especial Reference to Pulmonary Tuberculosis. P. Ellman.—p. 213.
Chronic Rheumatic Disorders: Investigation of After Effects of Spa Treatment. G. R. P. Aldred-Brown.—p. 215.
Treatment of Pulmonary and Surgical Tuberculosis by Ultraviolet Radiation: Review and Summary of Conclusions. A. Furniss.—p. 216.

British Medical Journal, London

1: 457-514 (March 9) 1935

Some Points in Operation of Gastrectomy. W. H. Ogilvie.—p. 457.
Clinical Observations on Use of Prostigmine in Treatment of Myasthenia Gravis. L. P. E. Laurent.—p. 463.
Treatment of Cellulitis, Suppuration and Burns. J. J. Robb.—p. 466.
Modification of Lotheison's Operation: Utilization of Sac in Radical Cure of Femoral Hernia. R. S. Melville.—p. 467.
The Kline Test in Syphilis. W. V. MacFarlane and J. Gorman.—p. 469.
Abdominal Hydrocele: Record of Two Cases. A. D. Charters.—p. 470.

1: 515-570 (March 16) 1935

Differentiation and Aberrations of Sex Characteristics. W. Blair-Bell.—p. 515.
Substance Responsible for Traditional Clinical Effect of Ergot. H. W. Dudley and C. Moir.—p. 520.
*Encephalomyelitis Simulating Diphtheritic Paralysis. S. Wyard and N. Hobhouse.—p. 523.
The Nature of Acidosis. O. C. M. Davis and F. W. Rixon.—p. 525.
Monilethrix: Second Group of Familial Cases. J. G. Tomkinson.—p. 526.
Treatment of Hammer Toe. W. S. Creer.—p. 527.

Encephalomyelitis Simulating Diphtheritic Paralysis.—Wyard and Hobhouse present four cases of encephalomyelitis that suggested diphtheritic paralysis and believe that a new significance should be attached to some of the most typical symptoms of diphtheritic paralysis. The feature common to all four cases was absence of deep reflexes in the legs, without gross paralysis or muscular wasting—a breach of the reflex arc which was probably mainly on the afferent side. Palatal paralysis was observed in three, and three gave a history of disorders of the throat. In one case the only history of sore throat was immediately preceding the onset of the paralysis. In one case there had been a history of diphtheria in the same house after the onset of the child's symptoms. Three cases were clinically compatible with diphtheritic neuritis, though none of them showed a defect of ocular movements. The other case combined the usual signs of diphtheritic neuritis with others which were incompatible with it—that is, multiple lesions of the upper motor neuron, which were slight and transitory. With the exception of one child who died of bronchopneumonia, all made good progress while in the hospital, and their physical signs cleared up partially or completely. The last case bore a strong clinical resemblance to many cases of mild spontaneous encephalomyelitis observed recently, except in that heretofore palatal paralysis has not been observed in this disorder. The few postmortem changes observed in the fatal case were quite compatible with it and to some extent suggestive of it. The authors believe that most probably all four patients suffered from this condition and they suggest that further experience may show that palatal paralysis is a symptom of a type of encephalomyelitis prevalent at the moment. None of the children were seen in an early stage of illness when confirmatory evidence might have been obtained from a cellular reaction in the cerebrospinal fluid.

East African Medical Journal, Nairobi

11: 337-374 (Feb.) 1935

The Medical Training of Africans. H. C. Trowell.—p. 338.
The State and Lepers in Malaya. T. B. Welch.—p. 353.
Leprosy Treated by Intravenous Injections of Methylene Blue: Case. R. W. Burkitt.—p. 356.
Gillan's Edema. D. V. Latham.—p. 358.
Notes on Three Cases of Obstetric and Gynecologic Interest. J. H. H. Chataway and J. A. Carman.—p. 360.

Glasgow Medical Journal

5: 113-184 (March) 1935

Prognosis in Intracranial Tumors. J. E. Paterson.—p. 113.
Some Pages from History of Prevention of Malaria. M. Watson.—p. 130.
Asthma and Angioneurotic Edema. H. E. Jones.—p. 154.

Journal of Physiology, London

83: 383-502 (March 15) 1935

Effect of Frequency of Excitation on Thermal Response of Medullated Nerve. L. Bugnard and A. V. Hill.—p. 383.
Effect of Frequency of Excitation on Total Electric Response of Medullated Nerve. L. Bugnard and A. V. Hill.—p. 394.
"Inhibitory" Effect of High Frequency Stimulation and Excitation State of Nerve. M. Cattell and R. W. Gerard.—p. 407.
Further Analysis of Effects of High Frequency Excitation of Nerve. L. Bugnard and A. V. Hill.—p. 416.
Electric Excitation of Fin Nerve of Sepia. L. Bugnard and A. V. Hill.—p. 425.
Action Potentials in Maia Nerve Before and After Poisoning with Veratrine and Yohimbine Hydrochlorides. L. E. Bayliss, S. L. Cowan and D. Scott Jr.—p. 439.
*Effects of Acetyl-β-Methyl Choline on Gastric Acidity of Monkeys. J. H. Ferguson and Elizabeth R. B. Smith.—p. 455.
Afferent Impulses in Carotid Sinus Nerve (Nerve of Hering) During Asphyxia and Anoxemia. J. Y. Bogue and G. Stella.—p. 459.
Intensity Discrimination and Its Relation to Adaptation of Eye. W. D. Wright.—p. 466.
*Adrenalin Content of Suprarenal Glands in Scurvy and in Inanition. W. Deutsch and W. Schlapp.—p. 478.
Sympathetic Dilator Fibers in Muscles of Cat and Dog. Edith Bülbring and J. H. Burn.—p. 483.

Gastric Acidity of Monkeys.—Ferguson and Smith found that acetyl-beta-methylcholine, in sufficient dosage, e. g., 3.5 mg. per kilogram of body weight by lateral cerebral ventricle, 7 mg. intravenously, and 10 mg. subcutaneously, temporarily abolished the free acidity in the test meal gastric contents of the green monkey. The total chlorides were not affected. As with pilocarpine, but much less strikingly, the intraventricular route had the lowest threshold. Vagotomy in one case slightly raised the intraventricular threshold, but to a degree that can hardly be considered significant. Atropine antagonized the anacidity effect of acetyl-beta-methylcholine chloride as with the other parasympathomimetic drug, pilocarpine. There was even less evidence than with pilocarpine that simple neutralization played any significant part in the production of the gastric anacidity. Preliminary experiments with posterior pituitary extracts have failed to demonstrate any anacidity response to the intraventricular injections tried.

Epinephrine Content of Adrenals in Scurvy.—Deutsch and Schlapp observed that there is an absolute reduction in the epinephrine content of the adrenals of guinea-pigs in scurvy. There is a reduction in the epinephrine content of the adrenals of guinea-pigs in inanition, and this must be an important factor in the reduction found in scorbutic animals. There is no significant change in the cevitamic acid content of the adrenals in inanition when sufficient green food is given in the diet. There does not appear to be any close physiologic relationship between cevitamic acid and epinephrine.

Journal of Tropical Medicine and Hygiene, London

38: 65-80 (March 15) 1935

Further Laboratory Observations on a Large Number of Pensioners Who Contracted Malaria and Enteric Fevers During the Great War and Returned to Residence in England. W. Broughton-Alcock.—p. 65.
Observations on Some Interesting Cases Occurring During Malaria Epidemic in Ceylon. S. de Silva.—p. 66.

Lancet, London

1: 531-594 (March 9) 1935

Respiratory Failure Including So-Called Asphyxia Neonatorum. A. Moncrieff.—p. 531.
*Chorea and Psychosis. A. Lewis and L. Minski.—p. 536.
Mental Deficiency: Analysis of Group of Cases. L. Findlay.—p. 539.
Rapid Diagnosis of Cerebrospinal Fever. B. G. Maegraith.—p. 545.

Chorea and Psychosis.—Lewis and Minski discuss three cases of chorea with psychosis in young adults and one of dubious choreic movements in a fatal case of schizophrenia. The etiology is always assumed to be toxic, but it is recognized as possible that here, as in Sydenham's chorea of children, not only may a rheumatic infection and other environmental factors be held responsible but also a constitutional predisposition and

an intoxication of some sort responsible for provoking the present attack. In a majority of those who have chorea during adult life, a history of chorea minor during childhood can be elicited. The analysis of the clinical observations and the anatomic changes in fatal cases suggests an interference with a complicated system covering cerebellomesencephalothalamocortical connections. A system rather than a "center" or a limited anatomic site is affected. Pregnancy appears peculiarly able through endocrine or toxic influence to revive or possibly to elicit the first instance. The occasional occurrence of choreic symptoms in epidemic (lethargic) encephalitis or, in later life, in focal disease of the brain suggests that it is not only rheumatism that may affect this "system" in so special a way. The anatomic observations are not yet relevant to clinical issues. In children with the familiar St. Vitus's dance, the usual changes are lability of affect and irritability; these are seen as naughtiness, outbursts of anger or crying and resentment at sensory stimuli; in others there is lessened spontaneity, often masked by the choreic movements. In more severe cases, usually in older children, the same changes are accentuated, and in the fleeting phases of anger or terror there may be slight delusional trends. Still more severe forms with delirium, hallucinations, delusions of persecution and much excitement are seen in adults. The relation of psychic changes to the other features of the disorder is not easy. At first one would assume that they belong to the symptomatic psychoses and exhibit the familiar features of an acute and more or less severe exogenous disorder. But it is unwise to ignore the presumptive localized changes in the connections between cortex, cerebellum and basal ganglions.

Medical Journal of Australia, Sydney

1: 295-322 (March 9) 1935

Sterilization of the Unfit: The Legal Aspect. F. R. Beasley.—p. 295.
Id.: The Medical Aspect. D. M. McWhae.—p. 298.
Id.: The Psychiatric Point of View. E. J. T. Thompson.—p. 301.
Some Aspects of Sterilization of the Unfit. R. H. Crisp.—p. 303.
Medical Education of Papuan Natives. W. M. Strong.—p. 305.
Homogeneous X Radiation in Biologic Experiments. W. H. Love.—p. 309.

South African Medical Journal, Cape Town

9: 97-138 (Feb. 23) 1935

The Education of Medical Men. P. M. Latham.—p. 97.
Medicine at the Crossroads. M. R. Drennan.—p. 105.
The Content of the First Year of Study in Medicine. R. A. Dart.—p. 108.

9: 139-178 (March 9) 1935

Medical Politics. A. G. H. Hay-Michel.—p. 141.
Staining of Cornea by Blood Pigment. D. J. Wood.—p. 142.
Sterility. L. J. te Groen.—p. 145.
Fatal Case of Plasmochin Poisoning. W. K. Blackie.—p. 147.
Pain in the Right Iliac Fossa. A. L. McGregor.—p. 148.

Tubercle, London

16: 289-336 (April) 1935

Experiences of the Mantoux Test in Dispensary Work. N. Tattersall.—p. 289.
Intrathoracic Tuberculosis Among the Chinese, with Especial Reference to the Province of Szechuan. H. G. Anderson.—p. 294.
*Standardized Tuberculin (Purified Protein Derivative) for Uniformity in Diagnosis and Epidemiology. E. R. Long, Florence B. Seibert and J. D. Aronson.—p. 304.

Standardized Tuberculin.—Long and his co-workers point out that the active principle of old tuberculin can be isolated by a method that they outline and put up in dry form such that the essential requirements of a standard, viz., specificity, high potency, constancy in strength and stability, are ensured. The active principle as it exists in old tuberculin is a protein derivative. In its present refined form it has been designated purified protein derivative from tuberculin. Optimal dosages of this substance for epidemiologic work and testing of child and adult tuberculous patients have been established on the basis of several thousand tests. The doses selected are 0.00002 mg. by weight of the purified protein derivative for the initial test and 0.005 mg. for injection of those failing to react to the first dose. Experience has shown that the small first dose detects all the highly sensitive cases, without danger of excessively severe reactions, while the second dose detects the remainder of positive cases; that is, those whose sensitiveness is such that they would respond to the conventional doses of preparations of tuberculin of strength equal or superior to that of the international standard. Several series of tests in the United States, England and Wales are reported, in some of which comparison with old tuberculin and roentgen observations is recorded. The roentgen examinations indicate that the purified protein derivative, like other tuberculins, may fail to detect an occasional case of healed primary tuberculosis with calcified foci, but that cases of clinical significance are not missed. The incidence of positive tuberculin reactions to the purified protein derivative in surveys in England and Wales varied from 38 per cent in children, 16 years of age or less in an orphan asylum, to 100 per cent in a tuberculosis sanatorium for adults. Almost all adult patients with tuberculosis reacted to the first dose. In the United States during the fall of 1934 the purified protein derivative was used in testing about 8,000 college students in various parts of the country. In the east about 50 per cent of the students reacted positively, in the middle west from 25 to 30 per cent and on the west coast about 50 per cent.

Chinese Medical Journal, Peiping

49: 101-200 (Feb.) 1935

Ankylosis of the Mandible. P. C. Tung and H. I. Chen.—p. 101.
Treatment of Open Fractures of Shaft of Femur: New Femoral Screw Traction Cradle. C. Chang.—p. 111.
Aseptic Meningitis: Another Hazard in Spinal Anesthesia. H. E. Campbell.—p. 119.
Studies on Chronic Arsenic Poisoning: II. Pulmonary Tissue Changes in Guinea-Pigs Exposed to "Mosquito Incense" Fumes. C. S. Yang and P. L. Li.—p. 132.
*Tuberculous Affections Under Mask of Rheumatic Conditions. Y. D. Tan.—p. 139.
Atriplicism: Report of Two Cases. K. Y. Yu.—p. 148.

Tuberculous Disturbances Under Mask of Rheumatic Conditions.—Tan states that the assertion of Loewenstein and his co-workers that tuberculous bacillemia is responsible for rheumatic arthritis and other rheumatic manifestations cannot be accepted at present and needs further confirmation. Whether rheumatic conditions are the result of releasing the responsible noxa sensitized by tubercle bacilli or whether they are variants of tuberculous infection in a soil of altered immunity is a field for further study. Arthritis or polyarthritis caused by tubercle bacilli may be in the form of Poncet's rheumatism or of the usual chronic tuberculous arthritis. In muscular pain of the chest, pulmonary tuberculosis should be considered in the differential diagnosis. Lumbago and sciatica are only symptoms and frequently caries of the vertebrae may be the underlying cause, though it should be differentiated from spondylosis deformans and ankylopoietic spondylarthrosis. Tuberculosis of the tonsils is not infrequent and may be accompanied by rheumatic pains of the joints and elsewhere. The tuberculous origin may be revealed months or years after the onset of rheumatic manifestations and its possibility should be kept in mind when these manifestations are preceded or accompanied by pleurisy or tuberculosis of other organs. Rheumatic conditions are merely symptoms. These may be caused by other micro-organisms, of which the tubercle bacillus is one of the most common.

Journal of Oriental Medicine, South Manchuria

22: 21-36 (Feb.) 1935

Vital Staining of Trypanosoma Lewisi: Part I. Experiments with One Hundred and Fifty Dyestuffs. S. Hatano and H. Ryo.—p. 21.
Id.: Part II. Experiments with Giemsa's and Funahashi's Solutions. S. Hatano and H. Ryo.—p. 22.
Appearance of Basophilic Granules in Erythrocytes in Healthy Infants in Mukden. T. Kuwano and H. Kondo.—p. 23.
Nutritive Value of Maize Mixed with Soy Bean. A. Abe kaj F. Etoo.—p. 24.
Scarlet Fever Anatoxin. S. Nagata.—p. 25.
Epidemiologic Observation on So-Called Manchuria Fever in City of Hsinking, Manchoukuo, in 1933. Y. Ozaki and I. Ohtsuka.—p. 26.
Purification of Diphtheria Anatoxin: Studies on Diphtheria Toxin III. T. Komiyama.—p. 27.
Arteries of Basis of Brain in the Chinese. K. Miyashita.—p. 28.
Parasitic Diseases Among Immigrants in Aikawa Village, Kinshu and in Denshodai Farm, Eiko, Manchoukuo. E. Kitabatake.—p. 32.
Influence of Component Parts of Allium Scorodoprasum on Blood Picture. T. Miyamoto.—p. 33.
Fungous Diseases of Skin and Mycologic Studies Among Inhabitants of Manchoukuo: V. Tinea Imbricata. T. Terai.—p. 34.
Distribution of Kala-Azar in Southern District of Manchoukuo: Part IV. Conclusion. M. T. Sei.—p. 35.

Paris Médical

1: 221-244 (March 16) 1935

*Treatment of Malignant Tumors by Cobra Venom. J. Lavedan.—p. 221.
Growth of Tissues: Regeneration and Cancer. C. Champy.—p. 227.
Cancer of Hormone Origin: Mammary Adenocarcinoma of Mouse. A. Lacassagne.—p. 233.
Surgical Therapeutics of Skin Cancers. A. Tailhefer.—p. 240.

Treatment of Tumors by Cobra Venom.—Lavedan has treated fifty-one cases of histologically confirmed cancer by injections of cobra venom. The venom was prepared in Professor Calmette's laboratory and contained 10 mouse units per cubic centimeter. The initial dose was 0.5 cc.; i. e., 5 mouse units. Three injections were given at two day intervals. The dose was regularly increased by 5 units every three injections until 50 units was given at one injection. At this dosage the injections were given twice a week or every five days. In some instances the injections were made directly in the tumor. The author concludes that the venom has no action on human cancers. A few cases of improvement were noted, but these may be explained on the basis of the occasional spontaneous stabilizations or regressions known to occur. The action on cancerous pain is undeniable, but it is inconstant, irregular, often slow, and habituation may occur. In dealing with incurable cancer, therefore, the author feels that venom may be reserved for the rare case in which morphine cannot be used.

Presse Médicale, Paris

43: 401-424 (March 13) 1935

Roger's Disease in Children: Cardiac Malformations Without Cyanosis. P. Giraud and Astésiano.—p. 401.
Importance of Water in Renal Secretion. J. Cottet.—p. 402.
Periodic Epileptic Attacks in Oxyuriasis of Chimpanzee. R. Deschiens.—p. 404.
*Rôle of Diencephalic Nuclei in Mechanism of Epileptic Attacks. A. Salmon.—p. 405.

Diencephalic Nuclei in Epilepsy.—Salmon reviews the evidence concerning the epileptogenic properties of the diencephalic nuclei, which he feels is adequate in demonstrating that experimental and pathologic lesions of these nuclei are translated into convulsive phenomena. This conception accords with the vegetative and hormone properties of the tuberian nuclei and clarifies the pathogenesis of numerous cases of diencephalic epilepsy recently reported. The idea of an epileptogenic center in the infundibular region, however, does not signify that epilepsy is always due to diencephalic changes. Epilepsy of cortical origin is more frequent than that of subcortical origin. This may perhaps be explained by the suppression of cortical inhibiting action on the subcortical centers. In any case the temporary improvement of epilepsy under the influence of barbiturates favors a close diencephalic connection between this manifestation and other functions, such as sleep, temperature and sugar regulation.

Schweizerische medizinische Wochenschrift, Basel

65: 289-312 (March 30) 1935. Partial Index

Causal and Formal Genesis of Acute Necrosis of Pancreas. A. Ghon.—p. 291.
*Osteosclerotic Anemia (Case of Marble Bones). H. Assmann.—p. 293.
Isolated Tuberculous and Septic Secondary Infections of Spleen. H. U. Gloor.—p. 298.
Differentiation of Bacteria (Species, Type and Phase). A. Grumbach.—p. 303.

Osteosclerotic Anemia (Case of Marble Bones).—Assmann reports a case of generalized osteosclerosis and anemia in a man, aged 25. The bodily structure of the patient was infantile. Roentgenoscopy disclosed that the greater density of the bones was most pronounced in the metaphyses and in the epiphyses, while the diaphyses of the long bones were only slightly involved. Histologic examination revealed that the bone marrow had become largely displaced by trabeculae or by fibrillar and infiltrated connective tissue. Between these there were a few medullary foci with signs of active erythromyelopoiesis. In the greatly enlarged lymph glands and in the enlarged spleen and liver, hyperplastic changes were evident. The histologic examination revealed in these organs active blood formation. The entire reticulo-endothelial tissue was in a state of chronic proliferation. It showed chronic inflammatory and fibrous changes but was also in a stage of regenerative, almost embryonal blood formation. The author thinks that the myeloid metaplasia in the spleen, the liver and the lymph nodes was a process of compensation for the deficient hematopoiesis of the bone marrow. The cause of the bone disease was unknown in this case: whether osteomyelitic processes were involved cannot be definitely decided, but a tuberculous cause could be excluded. The maxillary suppuration, which developed shortly before death and which has been observed in other cases of marble bone disease, probably originated in the teeth and progressed because of lowered resistance. The author thinks that the infantilism, which, among other factors, was manifested by the persistence of the epiphyseal lines and the hypoplasia of the genitalia, is probably caused by a functional disturbance of the hypophysis. Necropsy revealed that the hypophysis was small and that its cortical portions were atrophied. It is probable that the thickened bony structure of the sella turcica was responsible for these hypophyseal changes. Other incretory disturbances, particularly those of the parathyroids, were absent and there were no indications of a primary leukemic blood disease. Investigation revealed nothing that would indicate a familial occurrence.

Policlinico, Rome

42: 197-260 (April 1) 1935. Medical Section

*Coin Test in Pneumoperitoneum. A. Pozzi.—p. 197.
Studies on Biology of Megacaryocytes Surviving in Vitro: Action of Extracts of Spleen in Graduated Concentrations. M. Torrioli and D. Belleli.—p. 214.
Proteosynthetic Function of Liver. A. Milella.—p. 220.
Gumprecht's Shadows in Lymphatic Leukemia. A. Fabris.—p. 239.
Chronic and Subacute Hepatitis of Infancy, with Particular Attention to Infective Forms. L. Paterni.—p. 245.

Coin Test in Pneumoperitoneum.—Pozzi studied the coin test in ten subjects with experimental pneumoperitoneum and found that, applied to the abdomen, it is always positive when there is a sufficient quantity of free air in the peritoneal cavity. By introducing 50 cc. of oxygen at one time, the author observed that after 200 cc. there is a distinct change from the dulness on auscultation to a certain degree of sonority. Changes in liver dulness are slight. Both the liver and the spleen appear to be detached from the diaphragm at the esophageal hiatus and the foramina for the passage of the large veins. In the recumbent position on laterolateral projection, with the quantity of gas introduced the detachment of the anterior aspect of the liver from the abdominal wall may be seen as a transparent band, larger than a fingerbreadth. The percussion sound becomes clearer on introduction of more oxygen, acquiring a metallic quality when from 900 to 1,000 cc. of oxygen is introduced. At this point the roentgen presentation of the pneumoperitoneum is naturally much clearer. In the erect position the dome of the diaphragm is raised notably, often to the right, where the area of transparence has a height of almost five fingerbreadths. The detachment of the diaphragm from the abdominal organs appears complete. The pneumoperitoneum appearance in the recumbent position in laterolateral exposure is notably more accentuated than that observed in the preceding position. The author believes that, when the quantity of gas in the peritoneum is much less than may be evinced by roentgenography alone, the coin test may be useful; even though the sign may not be completely positive, the changes in the resonance are such as to justify a suspicion of pneumoperitoneum. The coin test applied to the abdomen may offer an important symptomatic indication of the presence of free gas in the peritoneum. The author sought to determine whether the test is useful in detecting an extensive abdominal meteorism and in differentiating between simple meteorism and pneumoperitoneum. For this purpose he gave insufflations of air in the colon to some subjects and administered by mouth the powders of Frerich to other subjects, thus obtaining distention of the colon, of the stomach and, to some extent, of the small intestine. For the stomach the results were completely negative. The test was also negative in distention of the small intestine. In all cases of insufflation of the colon, the coin test was positive in the erect and the recumbent positions.

Riforma Medica, Naples

51: 277-316 (Feb. 23) 1935

Experience with Neoplastic Ascites of Mouse. N. Waterman.—p. 279.
Hypoketonemic Action of Sulphur. G. Cavalli.—p. 281.
*Diathermy of Carotid Sinus in Hypertension. M. Sorrentino.—p. 284.

Diathermy of Carotid Sinus in Hypertension.—Sorrentino stimulated by means of diathermy the carotid sinus of sixteen patients, aged 50 and more, presenting various degrees of hypertension. Seven of the patients were women and nine were men. Four had vascular lesions and were hemiplegic. Ten showed signs of renal sclerosis. Frequent urinalyses and systematic determinations of the blood pressure were made and during treatment all medicaments were withheld. When a patient, after from four to five determinations of blood pressure taken in the recumbent position on different days and on the same arm, presented a constant figure, pulse and respiration, diathermy was administered on alternate days. After ten minutes and while treatment continued, another determination was made without removing the armband, and a final determination after the regular fifteen minutes of treatment. Applications were occasionally extended to from twenty to twenty-five minutes. The electrodes used were 10 by 15 cm. in size. The intensity varied with the individual tolerance, from 350 to 400 milliamperes to from 1,000 to 1,100 milliamperes. Treatment was well tolerated. Arterial pressure was lowered in almost all the patients. Several felt markedly better. After ten minutes of treatment, the maximal pressure was lowered by 0.5, 1 or 1.5 cm. of mercury and at the end of the treatment was 1, 1.5 or 2 cm. of mercury lower. After fifteen treatments the pressure was reduced from 1 to 5 cm. of mercury. The minimal pressure was lowered from 1 to 2 cm. of mercury. The pulse was increased in frequency (from eight to ten beats) after each treatment. The marked lowering was observed in cases of strong hypertension while in cases of mild hypertension the change did not take place to the same extent. In the female patients the lowering effect was quicker, clearer and more marked. The duration of this lowering of pressure varied. After a month or a month and a half the pressure generally rises again, especially in cases of slight hypertension. In patients with a maximal pressure exceeding 20 cm. of mercury, the pressure rises six months after treatment but does not attain the original height, remaining from 1 to 2 cm. of mercury lower. When treatment is protracted more than from twenty-five to thirty minutes the patient has a feeling of warmth in the head and shows redness in the face but no serious symptoms. It is significant that after from one to three months many patients return for treatment saying that, during and often after the period of treatment, they experienced a sense of euphoria in all their vegetative functions and that the buzzing in the head and other cephalic disturbances had disappeared.

Prensa Médica Argentina, Buenos Aires

22: 457-508 (March 6) 1935. Partial Index

Formulas of Ventricular Predominance in Arterial Hypertension. M. R. Castex, R. L. Ramírez and A. Nanclares.—p. 457.
Bismuth Angina: Marinho's Classification; Cases. P. L. Errecart.—p. 464.
Coagulants: Control of Their Action as Applied to Clinical Medicine. J. J. Beretervide, R. A. Neyra and O. A. Fitte.—p. 467.
*Disturbances of Dynamism of Uterus in Edemonephrotic and Eclamptic Syndrome. J. Leon.—p. 484.
Peritoneal Tuberculosis in Infants: Case. R. Monteverde and I. Diaz Bobillo.—p. 497.

Disturbances of Dynamism of Uterus.—Leon found that the disturbances of the uterine dynamism, especially general spasmodic contractures and local contractures in certain segments of the uterus in the course of labor, are frequent in women suffering with gravidic nephropathy (43 per cent in his group of 111 nephropathic pregnant women). Having in mind different degrees of intensity of gravidic toxicosis in the edemonephrotic and eclamptic syndrome, he observed that dystocic labor due to disturbances of the uterine dynamism is frequent in women with attenuated forms of gravidic toxicosis (45 per cent), rare in women with grave forms (36 per cent) and nil in eclamptic women, who, in his group, had a normal delivery. The frequent functional disturbances in gravidic nephropathy are explained by interpreting the condition as a general disease in which there are considerable changes in the blood and alterations of the sympathetic endocrine system. If the results of further statistical studies, planned by the author, prove that labor follows a rapid evolution in women who immediately after delivery or a few hours later suffer from eclamptic attacks, the rapid evolution of labor, in these cases, could be related to an overproduction of hormones of the posterior lobe of the hypophysis, which have been considered important pathogenic agents in the production of convulsions.

Semana Médica, Buenos Aires

42: 853-912 (March 21) 1935. Partial Index

Clinical Aspects of Infantile Medical Tuberculosis. J. C. Navarro.—p. 853.
Papilloma of Cerebellopontile Angle: Case. J. C. Montanaro and J. L. Hanón.—p. 873.
Contralateral Spontaneous Pneumothorax in Pulmonary Tuberculosis: Case. A. A. Cetrángolo.—p. 884.
*Anterohypophyseal Functional Insufficiency as Cause of Habitual Abortion. A. C. Kunz.—p. 894.

Habitual Abortion.—Kunz says that cryptogenic habitual abortion is due to a functional insufficiency of the anterior lobe of the hypophysis. This insufficiency produces a functional insufficiency of the corpus luteum, the placenta, the adrenals and the interstitial gland. The author succeeded in preventing abortion, after appearance of the bloody discharge, in five women suffering from habitual abortion, by the following treatment: The patient is kept in bed as long as the bloody discharge persists. At the same time she is given two daily injections of 1 Gm. each of a preparation of extract of corpus luteum. Although the discharge regularly stops in two or three days, the treatment is continued for three days more. By this time the patient may leave the bed. The total quantity of extract of corpus luteum given to the patient during the treatment varies between 6 and 10 Gm. Immediately after discontinuation of the treatment, the patient is given 200 rat units of anterior pituitary-like principle daily until she has passed the fourth month of pregnancy. In the author's cases the time varied between forty and sixty days and the amount given each patient was about 12,000 rat units. The five patients who received the treatment each delivered a normal living child at term.

Archiv für Gynäkologie, Berlin

159: 1-100 (Feb. 22) 1935. Partial Index

Medullary Strands, Medullary Cysts and Ovarian Papillomas. R. Joachimovits.—p. 1.
*Behavior of Porphyrin Elimination in Hyperemesis Gravidarum and Its Relation to Function of Liver. L. Herold.—p. 35.
Management of Delivery of Twins. C. Holtermann.—p. 41.
Continuous Estrus and Persistence of Follicle (Experimental Studies on Rabbits). W. Büttner and K. Wienert.—p. 64.
*Reduction Substances in Blood of Eclamptic Patients. H. Dietel.—p. 94.

Porphyrin Elimination in Hyperemesis of Pregnancy.—Herold determined, by means of the spectrocolorimetric method, the porphyrin content of the urine of twenty-one women with hyperemesis of pregnancy. He found that in fifteen the porphyrin elimination was increased in comparison to that of normal pregnancies. After an increased disintegration of erythrocytes had been excluded as the cause of the increase in the porphyrin content, an impairment of the hepatic function was considered the cause. This etiology was further corroborated by the outcome of the simultaneously conducted liver tests (galactose test, xanthoprotein test, determination of the bilirubin content of the serum and determination of the urea). Repeated tests on the porphyrin content in the course of the disturbance disclosed that an exacerbation of the condition was generally accompanied by an increase in the porphyrin elimination and an improvement by reduction in the elimination.

Reduction Substances in Blood of Eclamptic Patients.—Dietel stresses the significance of glutathione in the metabolism of the organism. In studies on patients with preeclampsia and with eclampsia, he found that the glutathione values are reduced proportionately to the severity of the eclampsia. Studies with different analytic methods revealed the lack of substances that have been designated as x-substances but have been found to be identical with cevitamic acid (vitamin C). The latter is a reducing substance; it plays a part in the process and regulation of the cell oxidations. The decrease of the cevitamic acid in the blood of patients with eclampsia permits the conclusion that the oxidation and reduction processes of the cells are diminished in this disease.

Deutsche medizinische Wochenschrift, Leipzig

61: 445-488 (March 22) 1935. Partial Index

Clinical Experiences with Serologic Methods in Infectious Diseases. C. Hegler.—p. 447.
Pathogenesis of Lymphogranulomatosis. S. Gräff.—p. 450.
*New Therapy of Juxtapyloric Ulcer. N. Henning and L. Norpoth.—p. 452.
Early Diagnosis of Blood Diseases. H. U. Gloor.—p. 455.
Cooperation of Various Types of Leukocytes and Its Disturbances. W. Ehrich.—p. 458.

Therapy of Juxtapyloric Ulcer.—Henning and Norpoth point out that the juxtapyloric ulcer, particularly its most frequent manifestation, the duodenal ulcer, is characterized by the nocturnal and hunger pains and by the superacidity and supersecretion. Tests have revealed that, whereas in normal persons the secretion ceases some hours after the onset of sleep, it continues in patients with duodenal ulcer. After calling attention to the acid factor in the pathogenesis of ulcer which, they admit, is not completely clarified as yet, the authors point out that, in view of the constant nocturnal secretion in patients with duodenal ulcer, nocturnal therapy is really more important than diurnal treatment. In their search for substances that would counteract the secretion of hydrochloric acid, their guiding thought was to realize this aim by osmotic impairment of the cells of the mucous membrane. They experimented with hypertonic solutions of dextrose and found that in cases of superacidity the acid secretion ceased for the duration of the dextrose action. The treatment that they evolved from this observation consists in the administration of small quantities of dextrose at short intervals. The technic is as follows: During the first days of the treatment the patient is given at hourly intervals 50 cc. of a 60 per cent solution of dextrose. A thin stomach tube is introduced every evening through the nose, and through it the same quantities of dextrose solution are introduced hourly during the night. Depending on the severity of the disorder, this strict form of treatment is continued for a shorter or longer period of days, but it is usually possible to add some zwieback with butter on the third or fourth day. The diet is gradually extended. The dextrose treatment is continued unchanged. Under the influence of this treatment, the acidity was reduced and the symptoms disappeared promptly. There was no loss of weight, even during the days when only dextrose was given. In the later course, the weight increased as a rule. Some of the patients complained of heartburn during the first few days, but aside from that there were no undesirable secondary effects. The blood sugar showed a normal behavior. The experiences with this treatment cover two years.

Jahrbuch für Kinderheilkunde, Berlin

144: 127-190 (March) 1935

Torsion Dystonia During Childhood. E. Ascher.—p. 127.
Relationship of Motility and Irritability of Smooth Musculature of Intestinal Tract to Dogiel's Intramural Ganglion Cell Types. B. Braune.—p. 164.
Suggestion for Reform of Outpatients' Department in Children's Clinic. H. Zischinsky.—p. 172.
*Kauffmann's Water Test as Functional Test of Heart During Childhood. S. Syman.—p. 175.

Functional Test of Heart During Childhood.—Syman investigated whether Kauffmann's water test is suitable for the determination of the heart action of children. His tests were made on thirty patients. Of eighteen children without heart disease, sixteen gave a negative reaction. In one of the two remaining children a more thorough examination made the existence of cardiac impairment seem probable. The other child was not examined again. Five children with heart disease, who were in the stage of latent decompensation, had a positive test, while one child in the stage of manifest decompensation had a negative one. Of four children with suspected cardiac impairment, two had a positive test, which corroborated the existence of a cardiac defect. In the two other children the outcome was negative. Two children with an increased lability of the circulation had a negative test. Kauffmann's assertion that in patients with heart disease, during the stage of latent decompensation, elevation of the feet increases the diuresis was thus corroborated in the author's studies on children. He was unable to corroborate the statements of several other examiners, who assert that patients without heart disease react in the same manner. He concludes that Kauffmann's water test can be used as a test for the cardiac function of children. However, he thinks that studies on a larger clinical material will be necessary in order to determine to what extent the outcome of the test can serve as a basis for therapeutic and prognostic decisions. At any rate, together with the results of other clinical examinations, Kauffmann's test is helpful in the estimation of the cardiac condition.

Münchener medizinische Wochenschrift, Munich

82: 445-484 (March 21) 1935. Partial Index

Actions of High Altitude Climate. A. Durig.—p. 445.
Cardiac Dilatation. F. Moritz.—p. 450.
*Are There Connections Between Influenza in Human Subjects and Distemper in Dogs? J. Nörr.—p. 455.
*"Caisson Disease" of Hip Joints. H. Frank.—p. 457.
Agranulocytosis Problems. K. Rohr.—p. 460.
*Characteristics of Lymphatic Angina (Monocytic Angina). E. Otto.—p. 463.

Influenza in Man and Distemper in Dogs.—Nörr calls attention to influenza-like disorders in domestic animals, particularly horses and dogs, and points out that Bemelmans in a report published in 1932 directed attention to similarities between the influenza-like disturbances in horses and dogs and human influenza. He further discusses the possibility of a transmission of the disturbance from animals to man or vice versa. In considering this problem he gives his attention primarily to distemper in dogs. He observed that since the winter of 1933-1934 a nervous form of distemper with convulsions, paralysis and compulsion movements became more frequent among dogs and that this form reached its maximum during the winter of 1934-1935. He thinks that this severe form of distemper is the result of an increased virulence in the causal organism and, although the greater incidence of this form of distemper shortly before the outbreak of the influenza epidemic does not necessarily imply a relation between the two disorders, this factor does deserve consideration. In this connection it is pointed out that human influenza as well as distemper is transferable to ferrets and that distemper also occurs in monkeys. According to Nicolle, human beings are susceptible to the virus of distemper and may be virus carriers. Moreover, another French bacteriologist, Remlinger, suggested treating dogs that have distemper with human convalescent serum, and the author, in turn, suggests that serum from dogs that have had distemper may eventually be of therapeutic value in severe cases of human influenza, the more so since serums of animal origin are used effectively in other infectious diseases.

"Caisson Disease" of Hip Joints.—Frank reports a case in which a man, aged 41, when employed at bridge construction, developed severe formication in the left hip joint. It appeared suddenly when, one day, decompression had been done somewhat too rapidly. He felt comfortable only as long as he was in the chamber. Later severe pains developed in the hip joint and the severity of the pains fluctuated. During the third year the symptoms increased considerably and he came under the author's observation. The left hip joint was sensitive to pressure and the movements were somewhat restricted. Roentgenoscopy disclosed areas of lesser density in the head of the femur. Moreover, on the rim of the head there were excrescences so that the entire lateral surface had an irregular outline. The articular space was diminished. The region between the upper rim of the head of the femur and the neck of the femur appeared as if gnawed on. The right hip joint was free from these changes, but here too honeycomb-like areas of lesser density appeared. The seroreactions for syphilis were positive, but the roentgenologic aspects of the articular disorder did not resemble syphilitic changes. The possibility of caisson disease was taken into consideration, but no definite diagnosis was made. The patient died two years later as the result of pneumonia and pulmonary embolism. The postmortem examination of the hip joint corroborated the roentgenologic aspects, but a histologic examination of the hip joint was neglected. A recent report in the literature, which described the impairment of the hip joints in four caisson workers in whom the anamnesis and the roentgenologic aspects were similar to that of the author's case, convinced him that the patient observed by him must have had caisson disease of the hip joint. The bone lesions resemble greatly those that are observed in caisson disease of the skin (marmorations and aeremia), of the internal ear or of the spinal cord and the brain.

Lymphatic Angina (Monocytic Angina).—Otto describes six cases of lymphatic angina (monocytic angina). During the beginning stage the diagnosis is rather difficult, particularly when examination of the blood is neglected. It may prove difficult to differentiate the condition from diphtheria, beginning cervical abscess and acute lymphatic leukemia. In one of the patients observed by the author, several complications developed: pneumonia, pleurisy, orchitis and hyperthyroidism. In most cases the course of the disease was similar to that of Plaut-Vincent's angina. The pharyngeal culture contained in four cases spirilla and fusiform rods, and in one case fusiform rods without spirilla. Generally the sedimentation speed of the erythrocytes was but slightly accelerated, somewhat as in Plaut-Vincent's angina. The question whether the lymphatic angina is the anginal form of Pfeiffer's glandular fever has not been completely clarified. The examination of the blood, which discloses an increase in the lymphocytes and the appearance of numerous cells resembling lymphocytes, is extremely important for a prompt diagnosis. A deviation to the left resulted in the case in which a complicating pneumonia developed, so that the increase in the lymphatic cells was no longer so noticeable. The author points out that an agglutination reaction may eventually prove helpful in the diagnosis.

Wiener klinische Wochenschrift, Vienna

48: 321-352 (March 15) 1935. Partial Index

Progress in Roentgen Diagnosis of Vertebral Column. H. R. Schinz.—p. 321.
*Observations in Epidemics of Meat Poisoning. J. Hammerschmidt.—p. 325.
Rare Mechanical Obstetric Obstructions. S. Liebmann.—p. 330.
Blood Pressure and Disturbances of Blood Pressure. H. Kahler.—p. 337.

Epidemics of Meat Poisoning.—According to Hammerschmidt, the genesis of food poisoning is not entirely clear as yet. He points out that Gärtner's theory is still accepted by many. According to that theory the symptoms of poisoning are the result of toxins that have been formed in the food by a pathogenic organism. This theory would explain that the toxins are thermostabile, that is, that poisoning may result also from foods that have been cooked. On the other hand, it has been observed that in the course of meat poisonings those persons became ill who have eaten raw or half raw meat, not, however, those who have eaten the meat after it has been cooked. The author calls attention to experiments which proved that pathogenic micro-organisms were still present in artificially infected meat after ten minutes of cooking. He reports two epidemics of meat poisoning in which the persons had eaten only cooked meat from animals that had been killed because they were sick. The meat had been fresh when sold, but in one case the meat as well as the intestine of the cow contained paratyphoid Breslau. In both epidemics the majority of the patients excreted the pathogenic organism in the urine and stool, and in many cases the agglutination tests of the serum were positive. It is possible that the appearance of infectious micro-organisms in the human body is an accidental occurrence. It is now generally assumed that the acute poisoning is usually caused by the disintegration and decomposition of the meat poisoning bacteria, which had entered the body alive, together with the food. However, in the course of the epidemics of meat poisoning the author observed also patients who had never eaten infected meat and yet they developed the same symptoms of poisoning and the stool and urine contained the same pathogenic organism. From the latter observations he concludes that the cause of such food poisonings must be an infectious one, for they cannot be explained by the intake of decomposition products generated in the food by bacterial action.

48: 353-384 (March 22) 1935. Partial Index

Causes of Increase in Cardiac and Vascular Disorders, Particularly of Angina Pectoris. R. Singer.—p. 353.
*Electrosurgery in Severe Infections. F. Mandl.—p. 363.
Rare Forms of Fungous Diseases of Skin. A. Musger.—p. 365.
New Method of Determining Sorgo's Skin Fold Phenomenon. M. Goldstein.—p. 367.

Electrosurgery in Severe Infections.—Mandl employed electrosurgery in fifteen cases. Two patients had old osteomyelitic processes, one a fungous infection of the ankle joint with fistulas and cold abscesses, six carcinoma that became sanious and led to a septic condition, two severe Bacillus coli infections, one so-called gangrenous erysipelas and three severe infections of the soft parts. One patient of the latter group died. In some cases amputation of an extremity seemed indicated but the use of electrosurgery made it unnecessary. The author stresses the following advantages of electrosurgery: 1. It avoids pressure on the tissues. 2. It produces hyperemia. 3. It closes the blood and lymph channels instantaneously and thus prevents the spreading of infection. 4. The coagulated tissue binds the bacteria. 5. The surgical shock is reduced, because electrosurgery prevents resorption. 6. The hyperemia and exudation necessary for wound healing are accelerated and intensified. 7. It is probable that electrosurgery mobilizes the defense powers of the organism. The author concludes that electrosurgery should take the place of ordinary surgery in severe infections.

Zeitschrift für Tuberkulose, Leipzig

72: 241-320 (March) 1935

Significance of Hereditary Factors for Pathogenesis of Tuberculosis. B. Lange.—p. 241.
Surgical Thoracoscope According to Graf. H. Kalk.—p. 262.
*Division of Pleural Adhesions from Single Puncture. J. Abelló and F. Abelló.—p. 267.
Influence of Geologic Structure of Region on Incidence of Pulmonary Tuberculosis in Man and Animals. E. Wilbrand.—p. 273.
*Demonstration of Tubercle Bacilli in Stool in Comparison with Their Detection in Sputum and Irrigation Fluid of Stomach. E. Piasecka-Zeyland and W. Sznajder.—p. 277.

Division of Pleural Adhesions from Single Puncture.—The Abellós point out that an apparatus for the division of pleural adhesions from a single puncture was first introduced in 1924 by Singer and that later several other appliances were introduced. They consider such surgical thoracoscopes a considerable advancement in the operative technic. They employed chiefly a modification of the apparatus of Graf. Before giving a description of this instrument, they discuss the preoperative measures. Adhesions that are to be divided are prepared by the so-called pneumothorax in short intervals. In this type of pneumothorax the pressure is not increased but is kept for a long time at a minimum. In some instances the authors refilled the pneumothorax every second day. They further discuss the localization of the pleural adhesions, reviewing the different methods of roentgenoscopy and roentgenography and emphasizing that the technic of Miñana and Coopestain gives the best results. Then they describe the operative technic, the advantages and disadvantages of Graf's apparatus and how they overcame the latter. The apparatus of Graf has the advantage of permitting the use of various technics (galvanocautery, diathermic coagulation, high frequency current and so on) in a single intervention. Moreover, of all the devices that operate from a single puncture, Graf's apparatus has the largest visual field. However, it has the disadvantage that the cautery is too short. The authors lengthened the cautery, particularly its point, and devised a cautery that could be used with high frequency currents and a galvanocautery. The combined use of these methods reduces the time required for the operation. The authors report a case that illustrates the advantages of the improved technic.

Detection of Tubercle Bacilli in Feces.—Piasecka-Zeyland and Sznajder examined the feces of sixty tuberculous patients for the presence of tubercle bacilli. Thirty-two of the patients were children with the various forms of tuberculosis, particularly pulmonary tuberculosis, and twenty-eight were adults with so-called open pulmonary tuberculosis. The authors used the culture mediums of Löwenstein, Petragnani and Hohn. Each specimen of feces was tested in ten different tubes. The culture medium of Petragnani proved to be the most satisfactory. The examination of the feces of the adults gave positive results in less than half of the cases (twelve positive results). In the children all the tests on the feces had a negative outcome, although tubercle bacilli had been detected in the gastric contents of seventeen of the children. Thus the tests demonstrate that, as regards the detection of tubercle bacilli, the examination of the gastric irrigation fluid is superior to that

of the feces. The authors conclude that the examination of the feces is useless in cases in which the other excretions have been found to be free from tubercle bacilli.

Acta Medica Scandinavica, Stockholm

85: 1-220 (March 30) 1935. Partial Index

*Bilirubin Tolerance Test as Functional Test of Liver. K. Bröchner-Mortensen.—p. 1.
Syndromes of Hypertension of Cerebrospinal Fluid. L. Papadato.—p. 33.
Periodic Somnolence. M. S. Kaplinsky and E. D. Schulmann.—p. 107.
*Symptoms of Ileus from Retention of Iron in Cecum Following Administration of Large Doses of Iron. H. Sjöberg.—p. 129.
Spontaneous Diuresis. F. Gerritzen.—p. 154.
*Studies on Condition of Heart in Obesity. T. Geill and K. Secher.—p. 210.

Bilirubin Tolerance Test.—By means of photometric analysis developed by Heilmeyer, Bröchner-Mortensen determined that plasma and serum have the same bilirubin content. The normal maximum of bilirubin is 1 mg. per hundred cubic centimeters of serum. The bilirubin content is not constant. In the normal person it generally increases during fasting and decreases after eating. The author discusses the theoretical basis and describes the technic of Eilbott's bilirubin tolerance test. He reviews clinical experiences formerly made with this method and then describes the results obtained with the bilirubin tolerance test in twenty-five normal persons, in twenty-eight patients with hepatic disorders and in thirteen patients in whom hepatic disease was not quite certain. As an indicator of the functional condition of the liver the test proved slightly more sensitive than the galactose test, the bromsulphalein test and the determination of the quinine resistant lipases. However, the method cannot be used in cases of icterus in which bilirubinuria exists.

Ileus Caused by Retention of Iron in Cecum.—Sjöberg points out that in cases of anemia with gastric achylia and deficient function of the intestine there is danger of retention of iron when large doses of reduced iron are given. He reports a case of achylia and a tendency to constipation in which a mass of unabsorbed iron accumulated in the cecum led to the development of a concretion, which in turn produced symptoms of ileus. The concretion was visible in the roentgenogram. The patient was treated with laxatives and enemas. The examination of the feces disclosed the presence of iron. Repeated administration of laxatives and enemas finally produced evacuation of stonelike lumps, and after that the symptoms of ileus disappeared. In order to determine whether the retention of iron is a frequent occurrence in anemic patients with achylia who are given large doses of iron, the author subjected a number of such patients to roentgen examination. Three patients proved to be free from shadows indicating the retention of iron, but in a fourth roentgenoscopy disclosed signs of retention.

Condition of Heart in Obesity.—To determine the relationship between obesity and circulatory disturbances, Geill and Secher made studies on ninety-two patients in whom obesity was the only disorder. They found that the heart is enlarged in older patients with obesity, but that the size of the heart decreases after a reducing and rest cure. However, the transverse diameter does not again reach completely normal values. The reduction in the transverse diameter is dependent on the loss of weight. Electrocardiography of these patients gives no indications of the existence of degenerative changes in the myocardium.

Hospitalstidende, Copenhagen

78: 281-308 (March 12) 1935

Investigations on Resorption of Nupercaine Through Mucous Membrane of Human Bladder. S. Harild.—p. 281.
*Stenosis of Aortic Isthmus: Casuistic Report. C. J. Jacobson.—p. 293.
Atypical Hemorrhagic Diathesis. E. Gjørup.—p. 299.
Report on Cases of Acute Hepatitis with Brief and Late Positive Result of Bauer's Galactose Test. T. Geill.—p. 305.

Stenosis of Aortic Isthmus.—In Jacobson's case, necropsy confirmed a presumably congenital stenosis of the aortic isthmus with ectasia of the arch of the aorta and the ascending aorta and hypertrophy of the heart, and development of a considerable collateral arterial circulation; there was stasis in the liver and kidneys, and the immediate cause of death was an effusion of blood within the pericardium. The patient was a woman, aged 35. He says that the following symptoms aid in the diagnosis of congenital stenosis of the isthmus during life: (1) visible and increased pulsation in the three fields where the collateral circulation may develop, (2) poor circulation in the lower part of the trunk and lower extremities, with pallor and anemia and subjective sensation of cold, and with cyanosis in the upper part of the body, (3) possibly stasis albuminuria, (4) retardation of crural pulse and increased blood pressure in the upper part of the body as compared with the blood pressure in the lower part, and (5) the results of roentgen examination.

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*Bronze Diabetes (Pigment Polycirrhosis): Review of Earlier Reports Together with Casuistic Report; Four Cases. K. F. Meldahl.—p. 309.
*Nevi Pigmentosi: Contribution to Understanding of Their Etiology. M. Bjørneboe.—p. 329.

Bronze Diabetes.—The results of necropsy in Meldahl's cases, observed within little more than a year, showed a typical bronze diabetes. Jaundice, ascites and prominent anemia were absent, except in one case in which ascites appeared during insulin treatment, as in the two cases reported by Bingel. The order of development is thought to have been cirrhosis of the liver and pancreas, with iron pigmentation, later diabetes and, finally, melanoderma. There were no endocrine disturbances or neurologic complications. The author ascribes the infrequent anatomopathologic diagnosis of bronze diabetes to the omission of microchemical examination, and the more infrequent clinical diagnosis partly to the incorrect impression, from the term "bronze diabetes," that the diagnosis depends on the presence of both pigmentation of the skin and diabetes, and partly to the lack of means of confirming the diagnosis when bronze diabetes has been suspected, a means which in his opinion is afforded by microscopic examination of the skin (demonstration of iron pigmentation).

Nevi Pigmentosi.—Bjørneboe reports a case of extensive nevi pigmentosi in a man, aged 37, combined with neurofibromatosis of the skin and complicated with primary melanosarcoma of the brain. There were hairy nevi on trunk and thighs. The case is explained by the assumption that neurofibromas and melanomas, or neuroplastic sarcomas and malignant melanomas, are of the same nature, which in this case seems to be supported partly by the intimate relation between the neurofibromas and the nerve cells, partly by the establishment of autochthonous melanin in a nerve with neurofibromatous changes. The author considers it probable that nevi are an organoid malformation in which both epidermis and connective tissue and presumably the nervous system play a part.

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*Continued Investigations on Presence of Antianemic Factor in Preparations of Dried Stomach from Cardia, Fundus and Pylorus Portions Respectively: IV. Preparations from Cardia Portion (Preliminary Report). E. Meulengracht.—p. 349.
Isolated Fracture of Seventh Cervical Vertebra and First Dorsal Vertebra Due to Tearing. V. Bloch.—p. 358.
Pirquet's Test in Rural Population. K. Wassmann.—p. 360.
Spontaneous Exsufflation from Pneumothorax. P. Bogason.—p. 361.

Antianemic Factor in Preparations of Dried Stomach.—Meulengracht found that, in pernicious anemia in man, desiccated pulverized preparations from the cardia glands of the stomach of swine possess a certain antianemic effect, slight, however, in comparison to that from the pyloric glands. The quantitative difference in the antianemic factor of the two glandular types is explained by the smaller amount of glands per surface unit in the cardia region, roughly from three to five times less than that of the pyloric region. The conception of a fundamental identity between the two types of glands is thus supported at least with regard to production of the antianemic factor. Histologically, the points of resemblance are so marked that the glands may anatomically be regarded as identical. The so-called cardia glands in swine are presumably pylorus glands, which in a manner peculiar to swine extend upward and along the lesser curvature and over a large part of the cardia portion.